BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 25 1951

MY ACADEMIC LIFE

BY

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On September 13, 1886, I made my appearance on a Monday—washing day. I always could be awkward. I was born within the gates of the ironworks at Rhymney, Monmouthshire. My father, a hard-working and industrious man, the fourth generation of master iron-workers, was manager of the Bessemer steel plant. My mother was a vigorous, courageous, and shrewd woman who had inherited the toughness and moral fibre of her sturdy Nonconformist Radnorshire stock. I was the youngest of six children. Within four years of my birth the lights went out of the melting pots, the fires were drawn, and Rhymney ironworks became derelict.

My Early Days

The family migrated to Merthyr Tydfil, where once again we lived within the gates of the Cyfarthfa Iron Works, in the house occupied by William Crawshay (1788–1867) before he built Cyfarthfa Castle. Again I saw the lights of the Bessemer, the glare of the blast furnace, and the unholy dazzle of the puddling furnace where skilled men, half naked, worked themselves to death. Cataract of the eye and pulmonary arteriosclerosis collected them in middle age.

All night long the moving ingots of steel as they passed through the rollers in the mill cast a series of processional shadows of window, curtains, and blinds across the bedroom wall. We saw caravans, camels, Arab sheikhs, armies, navies, and even the procession to and from the Ark on those walls. If the noisome machinery stopped in the dead of night we awakened and crept to the window to see the minatory procession of stretcher-bearers and ambulance leave the works for the hospital or the mortuary. Such a procession bore away my father when I was 8 years old.

Within a few years the lights went out, the fires were drawn, and Cyfarthfa became as derelict as Rhymney. How often the melting-pots have gone cold in South Wales! Hirwaun, Ynysfach, Penydaren, Rhymney, Blaenavon, Cyfarthfa, Ebbw Vale, Dowlais, Pentrechwyth, Morriston, Landore, and—who knows, who cares? These were the birthplaces of modern metallurgy. Boom and slump! A few more millionaires devoid of public spirit. For the masses acute depression, gloom, and despair. Unemployment, starvation, and forced migration for the young people; the workhouse for the aged and the crippled.

Think of that belt of country stretching across the coal, iron, and limestone outcrop from the western valleys of Monmouthshire and north Glamorgan to Swansea and Llanelly—treeless, soulless, glamourless. The countryside, above and below ground, robbed, raped, and destroyed. To know any industrial area from the social angle it is only necessary to visit the railway goods-yard, the colliery and steel-works railway sidings, the docks and wharves of the waterfront—either sea, river, or canal—the gasworks, and the dreaded workhouse. All the low-lying flat land, particularly if it enjoyed good natural drainage, was seized for industrial purposes. Soon, in turn, this was surrounded by new slums. Electric light was installed on the rail bank in Rhymney Iron Works in 1881. Think of the time spent and wasted by women in cleaning, filling, and tending paraffin lamps and searching for candles or tallow dips from that time onwards.

School-days

I was educated in Abermorlais Elementary School under the influence of John Jenkins, who was at one and the same time, as a justice of the peace, the friend of the offender and the terror of the Bench. I then attended an advanced elementary school under the charge of George Fleming, M.A., who would put boys through matriculation in seven or eight subjects, all of which he taught himself with vigour and enthusiasm We learnt to lisp Eutropius and Caesar at 10 years of age. He was a well-known entomologist. I then spent a couple of years in the Merthyr Intermediate (County Secondary) School and took the higher certificate of the Central Welsh Board in English, French, and mathematics, pure and applied. The headmaster, Charles Owen, M.A., was an old railway goods clerk who taught us English from the Anglo-Saxon Chronicle and Beowulf onwards with such love of the humanities that we all knew Palgrave's *Golden Treasury* by heart without the fatigue of learning it. Such were the cultured teachers at the junction of the two centuries. The word "coaching" was unknown. A "crammer" was an outcast of the ancient universities who prepared a dud for a commission in the Army or Militia.

On the results of the higher certificate and an entrance examination at University College, Cardiff, I gained two scholarships of the value of about £88 per annum. I

read science at Cardiff and took the course for the training of teachers. I did not do well, partly because I was too young and partly because there was no machinery for bringing the student into contact with cultured men. There must have been some at Cardiff. There certainly were academics who were narrow in their preparation and outlook and treated the average raw student as though he were predestined to become a researcher. There was none of that intimate contact between teacher and taught which was the mainspring of the most expensive public schools and the ancient universities.

Study at University College

After several happy years' teaching in elementary schools, secondary schools, and in evening technical classes I determined to read medicine, following in the footsteps of one of my brothers, D. T. Harris, who recently retired from the chair of physiology in the London Hospital. I entered University College with the Bucknill Scholarship. Here I found teachers who were as enthusiastic as those of my childhood. E. H. Starling, Sir William Bayliss, and Buckmaster were in physiology, R. H. A. Plimmer in biochemistry, and, in particular, Sir George Dancer Thane in anatomy. Thane was the last of the precisionists in anatomy, a great medical historian, and an authority on the *Dictionary of National Biography*. When about to enter hospital, Thane insisted that I serve as part-time demonstrator in anatomy while still pursuing my hospital work. He worked me to the bone for the princely stipend of £150 per annum, but the contact with Thane's mind and method was worth a fortune. After taking my degree I spent my time partly in anatomy and partly in hospital, where there was a concourse of giants. Sidney Martin, Sir John Rose Bradford, Charles Bolton, Batty Shaw, F. J. Poynton, T. R. Elliott, Sir Thomas Lewis, Wilfred Trotter, T. W. P. Lawrence, and A. E. Boycott. The intellectual atmosphere and culture of U.C.H. transcended the medical scientific brilliance. We had a liberal education.

When Thane retired from the chair of anatomy in 1919 he was followed by that extremely brilliant figure, the late Sir Grafton Elliot Smith. His arrival at University College sealed my fate. I could not desert anatomy, for I could not leave Elliot Smith. Egyptology, neurology, and anthropology were opened out to me. I saw at close contact the vagaries, turns, twists, and intense driving force of one of the best intellects of the century. Yet I continued to spend almost half of my time in hospital and was mainly interested in the babies and children, for the growth of animal or plant always attracted me. I spent several years in the dual role of anatomist and physician, demonstrator of anatomy and curator of the museum on one side of Gower Street, and assistant to the medical unit on the other.

In 1931 I was elected to a new chair of clinical anatomy, established jointly by University College and University College Hospital. These were halcyon days, for the closest co-operation existed between the two sister institutions. In 1934 I was elected to the chair of anatomy at Cambridge. I retire from this on September 30, 1951, under the age limit, having enjoyed seventeen years of contact with the Cambridge medical students, and having watched with pleasure their growth and development. My only complaint is that an overcrowded school of nearly 600 students does not facilitate that intimate contact which is the basis of a liberal education.

The Medical Student of To-day

All is not well with the education of the medical student. There is a surfeit of small men who dub themselves medical scientists. There is a shortage of cultured doctors interested primarily in the art of living. Medical students come up to Cambridge after two years of cramming for the four subjects of the first M.B. The fashionable talk about the atom and the origin of the universe has denied them any precise knowledge of surface tension, viscosity, elasticity, and the general properties of matter. They may have hazy notions of rheology, but they do not know Hooke's law of elasticity, Young's modulus, or Graham's law of diffusion. So it is not surprising that they fail to realize that a healthy skin is waterproof and the gut is not. All too frequently they are crammed by specialists, turnspits of science, who have little of the breadth of vision and culture which was the hall-mark of the sound teacher of 1750 to 1900.

The medical student should never miss the opportunity to travel by foot or sea, for travel induces interest in the broad and cheerful stream of life. As schoolboy and student I walked the rivers and mountains of Wales. After qualifying M.R.C.S., L.R.C.P. I enjoyed a trip of seven months around South America. In 1925 to 1927 I spent fifteen months and five months in the U.S.A. as a Rockefeller Research Fellow, and I am most grateful for the inspiration I derived in St. Louis and the Mayo Clinic.

The medical student to-day, like the community in general, is suffering from the failure to realize that speech is a more recent acquirement than vision. Visual aids—the cinema and television—are a poor substitute for declamation. The sound teaching of the good clinician is the only teaching left which approaches in excellence the declamation and conversational approach of the Greek philosophers.

It is not enough to examine a patient or a dissected part visually, to read endless laboratory reports, radiographs, and electrocardiograms. The signs and symptoms of the patient or the lay-out of the dissection must be discussed aloud. It must be impressed on the student that there is no method of assessing "how, why, when, and where" unless time is patiently spent in eliciting a careful history. As Sir John Rose Bradford used to say: "Clinical examination may give you the site of the lesion. A careful history, the patient's, not yours, will give you the nature of the lesion." How I remember the out-patient dyspeptics of U.C.H. whom one met later in the Oakley Square T.B. Clinic—the hastily diagnosed "appendix" which was a pneumonia, the impatient handling of the mother whose child developed a "mastoid" or died of "D. & V." within twenty-four hours. Medicine is an art, and largely a vocal as well as a visual art.

The Financial Position

What of the economic position of the anatomist? No one should become a professional anatomist unless he is prepared to carry the burden of a small salary without interfering with his efficiency as a teacher or researcher. My standard of living has not altered sensibly since those merry days as a student in Cardiff University College on £88 per annum. During this last session I had one son at Cambridge University and one daughter pursuing a post-graduate course in London, so that my effective income for 1950–1 was commensurable with that of my student days in 1903.

Cambridge University in particular has treated its medically qualified demonstrators and lecturers in the preclinical subjects in most niggardly fashion, so that some of my first-class students, now medically qualified, are working for £350 per annum—with several years of active service thrown in. Cambridge will suffer.

Yet, in spite of financial stringency, I rejoice that I turned a deaf ear to the many temptations to enter private or consultant practice or to accept attractive financial offers from the U.S.A.

Old and Recent Students

My Old Students.—The best men and women, in the sense of wholeness, are in general practice. Some of the best are in consultant practice. Many of the poorer ones have become specialists, by the acquirement of one of the many tawdry diplomas which clutter up medical education.

The N.H.S. must recognize the difference between the consultant and the specialist. The latter is a man who has specialized in some narrow field. On the other hand the consultant is a man of stature who is consulted by his old students, his fellow students, and even by his teachers. He is not selected on academic attainments but arrives on his prowess as a doctor. This innate difference between consultant and specialist must be recognized sooner or later as a fundamental fact. Moreover, it must be met, as regards financial implications, by a frank public statement as distinct from the present backstair method of merit awards.

My Recent Students.—I advise them to combine some historical perspective with a first-hand knowledge of the structure, function, and habits of Man. William Harvey, Stephen Hales, and Thomas Young are of greater import than May, Fuchs, and Pontecorvo. Faraday, Pasteur, Claude Bernard, and E. H. Starling are of more significance than the Third programme. The Bible and Shakespeare are part of our social heritage and our way of life in a sense that the Bloomsbury and Mayfair novelists never will be.

The health of this country will be improved only by efficiency at the periphery, as distinct from centrally at the Ministry. To achieve this good students must be prepared to enter general practice at the periphery and improve the standard of medicine by continuing as students not only of Medicine in the narrow sense but of the Art of Living in the broad sense. Comenius, as far back as 1657, said that the function of the university was "to bring sap, vitality, and strength to all." Good anatomists, as well as good doctors, can help to achieve this.

Dr. W. G. Harding, senior assistant medical officer of the London County Council Public Health Department, recently visited Paris (see *Medical Officer*, June 16, p. 239) in order to make a study of some of the public health and welfare services in that City. He arrived at one institution, for homeless families, just as the residents were eating their midday meal. "The ration issue of macaroni was 80 grammes dry weight (about 3 oz.); and of boneless meat 100 grammes (about 4 oz.) or of meat with bones 120 grammes (about 5 oz.), for a meal issue. The quality of the meals was excellent. It seemed almost unbelievable to find later on some of the residents preparing extra dishes on petrol cookers in their own rooms (strictly against the rules) in order to 'supplement' the official diet, which in quality and quantity appeared to be of a standard hardly equalled in our better restaurants. This point illustrates the very different standards of feeding in our two countries."

CONSULTING MEDICINE

BY

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Physician to Guy's Hospital

The Editor has suggested that in writing about the career of a medical consultant the subject should be approached in the manner of an autobiography. This, then, is my excuse for an egotistical display usually reserved for those who have retired.

It is always of interest to oneself, and possibly to others, to look for the reasons for adopting medicine as an occupation. Parental influence is probably the most potent factor. Paternal and avuncular example conditioned me, as it were, to the idea of medicine. When approaching matriculation age I finally determined to be a doctor because I loathed bowing to authority and wanted to be my own master. Last, and perhaps not least, an appallingly bad school record in respect of work was leavened by some signs of proficiency in science. I remember a lugubrious headmaster telling me that if I did not take Latin in the matriculation I should for ever be barred from achieving that "plum of the profession" the London M.D. A merciful change of attitude of the University authorities rendered this gloomy prognostication inaccurate.

Medicine or Surgery?

Why choose medicine as opposed to surgery? I suppose that most students when they reach the wards have a leaning towards surgery as an art more dramatic in its execution and prompter in its curative effect than the exertions of a physician. To some extent the preclinical period of training may influence the choice, but seldom to a striking degree. I think I can trace the effect of such masters as Starling and Cushny at University College in exciting an interest in the functions and reactions of the human body, but it is probably more a matter of trend of mind. There were others who were fascinated by the intricacies of anatomical structure and who early excelled in this subject. They chose surgery as a natural outlet. During four years' internment in Germany in the first world war I found that pharmacology and physiology could be read with profit, but that the study of anatomy without a corpse was a fruitless labour. This fact, and the opportunity of observing at close quarters four thousand fellow beings of all ages and from all strata of society, directed me to the more contemplative life of the physician. At the end of the war, finding all my friends dead and their places filled by women—a new phenomenon—I departed to the then misogynous atmosphere of Guy's.

I found that within a year of starting clinical work it was possible to be sure in which direction the final choice would lie. Even one's physical attributes may be of importance in determining the future. A surgeon stands for many hours in a hot operating theatre. If he is short and stocky he may feel none the worse. A tall thin man or woman will find prolonged immobility in these circumstances unbearable and productive of such exhaustion that as a life's work it would be unthinkable. The absence of manual dexterity will again tend to divert from surgery, but this is less important, because with determination it can usually be overcome.

The influence of clinical teachers in deciding whether medicine or surgery shall be embraced is all-important. In my experience it was the registrars who finally settled the question. I had the good fortune to work under two men, mature from experience in the first world war, both to become famous, the one in general medicine, the other in neurology. They were superb teachers, obviously with a sense of vocation, meticulous in the execution of their duties, and never impatient with the ignorance of their ward clerks. They taught medicine not as a condensed summary of the textbook, but as an art to be practised on persons suffering physically and mentally, who needed help primarily from a doctor but also from one who had an understanding of human problems. To the sound grounding which they gave was added the impressive and more discursory teaching of the visiting staff. On the one hand, I was taught by a physician whose care for detail in history-taking and examination emphasized time and again the lesson that any mistake due to carelessness was unforgivable; another chief seemed to possess an effortless flair for diagnosis and a robust belief in the efficacy of drugs given in heroic doses. What a remarkable pair of men they were. They formed a complete contrast in their approach, but they had this in common—nothing was too much trouble to help the sick. It followed that the life of a physician was the only possible goal.

Consulting or General Practice?

In the days of which I write, apart from higher qualifications and a good reputation with one's seniors, consulting practice was out of the question unless one had some degree of financial security. Postgraduate jobs were not paid until one reached the stage of registrar. Even at that exalted level it was necessary to have two appointments at hospital in order to earn £250 per annum. This was thoroughly bad and led many men to leave hospital immediately they were qualified, and, indeed, to take the most meagre qualifications. If registrar status were reached one had to supplement income and lose most valuable time in the soul-destroying occupation of attending pensions boards, or of running night panel practices. I embraced both expedients, and in the tradition of the time developed tuberculosis. This seemed to put an end to any thoughts of becoming a consultant. It proved a blessing in disguise. After six months vegetating in the country I entered general practice in Sussex. It was here that the value of higher qualifications as a substitute for hard cash was apparent. I was offered a share in a most delightful partnership and allowed to pay all expenses out of earnings. No greater incentive to hard work could be devised. The greater the takings of this partnership, the quicker the freedom from debt. A rosy estimate suggested a term of ten years.

I have never regretted my four years in general practice. The intimate problems of the patient and his relatives and of the general practitioner himself can be learned only in this way. It was here that I saw how helpful or how disastrously unhelpful a consultant could be, not so much according to his knowledge, but more on account of what he said or did not say. Within a year or two of starting this work I was rung up by one of my old chiefs with the suggestion that I should apply for a staff vacancy which would soon arise at my old hospital. When I told him my financial position he quite rightly told me to forget all about it.

A Cure for Varicose Veins

Soon after, a stroke of pure luck brought me back to London. In the 1920's the *British Medical Journal* carried a series of excerpts of foreign literature. Glancing through this one night I saw that a Dr. Génévrier, of France, stated that he could cure varicose veins by injections of quinine. This was a startling claim in those days. However, I had a woman patient whose life was made miserable by huge varicosities and recurrent ulcers. I asked her whether she would experiment with me. She was to be the guinea-pig, I the experimenter. Such is the faith of patients in their general practitioners that she consented. We proceeded to follow Dr. Génévrier. My first grey hairs appeared at this time as I lay restless at night expecting a call of embolic urgency. All went well. Success was complete. It was not long before I was treating the varicosities of Sussex and neighbouring counties. It is amusing to look back on the reception a short article of mine received when I published the results. Eminent surgeons wrote that the treatment must be wrong because it was contrary to surgical principles. One such rang me up and urged me to stop this evil practice. He said that one had no right to put into a vein substances which one would not take by mouth. When I asked him if he was willing to swallow N.A.B. he slammed down the receiver. We are the best of friends to-day, but the incident is never mentioned.

So many inquiries followed this article that I decided to publish a monograph. No publisher would look at such an effort from an obscure general practitioner, so I paid the expenses and hoped for the best. Edition followed edition, and with this a demand from doctors to treat their patients in London. The next step was to devote my weekly half-day off duty from practice to acquiring a limited consulting practice in town. This I was enabled to do by the generosity of an old surgical friend who put his consulting-room at my disposal. Work flowed in beyond my wildest dreams. Of course the fees were paid into the partnership, but my power of paying off was increased.

A Hospital Appointment

A second vacancy occurred at my old hospital. This time, with a varicose nucleus on which I could live, I applied and was successful.

The risk of giving up a safe job for a hazardous one was still great. In those days an assistant-physician was paid a honorarium of £100 a year, and a consulting-room cost £200 to £300 a year, to say nothing of the cost of a flat. It used to be reckoned that it took five years before a consultant earned enough to pay his expenses. This gap I escaped, because during my years in Sussex my old students had gone out into practice and started to give me medical consulting work soon after my return. I wonder if any physician forgets the excitement of his first long-distance consultation. The anxiety to give the right diagnosis, to please the even more apprehensive general practitioner, and to satisfy the relations was great. It is a gamble for a general practitioner to call in a young and untried consultant. I hope those who have helped us in our early struggles realize how grateful we are.

Within a year I was able to discard varicose veins, which I had come to detest and which the surgeons had

now embraced. General medicine was my life for the future, and it has been completely satisfying.

So much for the personal narrative. Now some general notes on the life of a consulting physician.

The Period Between the Wars

I shall be very brief in dealing with the period between the two wars, because, though of historical interest, they can be of no concern to the student of to-day.

Conditions have undergone a radical change. By this I mean that before 1939 a consultant had, in the absence of private means or appointments with insurance companies, to work for years with a burden of worry. Now no acute fears of insolvency arise, because we are all paid quite well for our hospital work. In the former period it was essential to be always available in the hope of receiving work from overworked seniors, or from general practitioners who could not find their favourite consultant at week-ends. A fortnight's holiday a year for the first ten years and not more than six week-ends a year was the maximum it was wise to take if a large practice was to be built up and held. In addition to teaching hospital work the consultant was usually well advised to serve on the staff of one or more small outlying hospitals in order to make himself known. During the autumn and winter months he would accept invitations to lecture to local medical societies anywhere from Glasgow to Jersey. All this was great fun, but it was exhausting and a strain on even the most robust constitution.

Present Conditions

Since the institution of the National Health Service the consultant can avoid a lot of unproductive hack work; he is no longer compelled to hasten into print; he may reach maturity without a scramble. This is to the good.

Apart from the economic aspect the National Health Service has effected little change. Our work is the same, our pride in our hospitals unchanged, and our loyalty to our colleagues seems to be as firm as ever. An enormous increase in committee work, it must be said, is the fly in the ointment. I believe that young men would still be well advised to practise as part-time hospital consultants and spend the rest of their hours developing a private consulting practice. There is still plenty of scope for it and it helps to preserve the all-important interest in the patient rather than in the disease. As years go on there is a tendency for a whole-time hospital physician to forget the background of the patients in the wards. Their financial and domestic worries are immensely important. They seldom have an opportunity of unburdening themselves to a doctor in a public ward or out-patient department. There is usually a sense of hurry in out-patient work, unavoidable because of overcrowding, but nevertheless militating against the most valuable exercise in diagnosis—namely, the taking of a patient's history. These are just a few of the reasons for preserving the private life of a consultant.

If you are practical in your outlook you may be more interested to note that a part-time physician can charge considerable expenses against income tax. On this note another consideration is that a whole-time worker is at the mercy of the Government. A financial crisis has only to be declared and the Treasury may demand a cut in salaries of 10 or 20%. This happened before doctors were Civil Servants and were thus immune. Ask your parents if they remember the Geddes axe.

For established consulting physicians the advent of the National Health Service had but little effect on total incomes. Most of a physician's income is derived from fees paid for consultations at his house. The large fees for long-distance calls were falling off long before 1939 for the good reason that consultants were no longer almost limited to London but were to be found in most of the larger cities. The National Health Service may have accentuated this process.

We have on the whole escaped lightly when we compare our lot with the overworked and grossly underpaid general practitioners. They tell me that the whole attitude of the patient to his doctor has changed. He regards his doctor as his paid servant. This is a great pity and can bring nothing but unhappiness to all concerned.

Conclusion

Finally, if you embrace the life of a consulting physician do not forget that you are consulted by a general practitioner for your opinion on his patient. There must be no direct consultant–patient communications apart from those at the consultation. Your secretary must be instructed to book cases only if the general practitioner wishes for the interview. The patient must never see you again unless the general practitioner is first consulted. A few will slip through the net, when servants are in charge of the telephone, no matter how tightly it be woven. They must be reproved and the practitioner written to with an explanation of how the situation arose.

A consultant who is willing to take patients irrespective of the general practitioner is degrading his status and incidentally storing up endless trouble for himself. He may benefit financially, although even this is doubtful, but he will lose the respect of his fellows. If you achieve recognition, affection, and respect of your colleagues after many years of work what greater prize could you desire?

The National Health Service Act, 1946, increased interest in all phases of hospital work, and this, combined with the growing complexity of modern hospital organization and management, increased the demand for information and advice. The King Edward's Hospital Fund decided that the new situation could best be met by the establishment of a Division of Hospital Facilities. This was done in November, 1948. The division comprises a general information bureau and advisory service, an accounting and financial advisory service, and a library of hospital books, journals, and plans, British and foreign. It has a practically world-wide arrangement with hospital and allied organizations for a regular exchange of information, as a result of which a considerable amount of hospital literature, plans, etc., of other countries, not generally available in Britain, is currently collected. The library contains over 800 books on all aspects of hospital organization and management, and a large number of plans of all types of hospitals. The division visits hospitals, discusses problems, and gives advice. It carries out investigations and surveys and submits reports. At present it is engaged, jointly with the Nuffield Provincial Hospitals Trust, in carrying out a special costing investigation for the Ministry of Health. Another side of the activities of the division is that of receiving hospital visitors from overseas and arranging tours of hospitals for them. This activity is really a two-way service, as hospital officers going abroad with personal introductions from the division are assured of a warm welcome and every possible help. In all cases copies of the reports of these visitors are sent to the division.

FORTY YEARS IN PUBLIC HEALTH

BY

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It is a fillip to the ageing to be told that someone might be interested in their past, and I am flattered by an invitation to set out how I came to enter the public health service, what has befallen me while in it, and what are my reflections on the service after a lifetime spent there.

My father was a medical officer of health. I had a great respect and admiration for him. He and my mother and I never even discussed any other career for me than qualifying in medicine and following in his footsteps in the preventive medicine branch. He advised me to take a degree in science as well as in medicine and to obtain some evidence of proficiency in chemistry, physiology, and pathology. All this I tried to do, and had the inestimable advantage of being a student of Professor (now Sir Charles) Sherrington. When I reached the hospital wards and subsequently qualified, I found clinical medicine fascinating, and, stimulated by Professor J. H. Abram and Dr. John Hay, I had serious thoughts of deserting my proposed career in public health and becoming a consulting physician.

There were, however, two things which made me hesitate. The first, possibly due to a young man's idealism, was a reluctance to depend for my living on taking money from individual sick people. I would have had no hesitation in sending a large bill to a patient who had recovered, but I was realistic enough to know that many of my patients would not receive material benefit from the therapeutics of that period and that some would die. I wondered if the earnings of a physician such as I would be, who would probably remit many of his bills, would provide even the modest income which I expected. The other reason was that at that time in Liverpool there were about half a dozen quite brilliant young physicians, all a few years senior to me. It is a striking and most melancholy fact that within ten years all had died. The most brilliant were Dr. O. T. Williams, who died of acute pancreatitis, a disease of which he had made a special study, and Dr. W. B. Warrington, the neurologist, who died of pneumonia. My decision to continue to prepare myself for public health was taken, of course, without this knowledge of what the future held.

My Early Posts

After my house-physician post, I transferred to the "Special Departments"—eyes; ear, nose, and throat; and V.D.—as, with the beginning of the school medical service, the former two subjects would be of value to a medical officer of health. I was again nearly deflected from my course. My chief in the eye department was Mr. T. H. Bickerton, and we became greatly attached to each other. He turned up unexpectedly one morning when I was doing some minor eye operations and told me afterwards that it was to see what sort of an operator I would make. He offered me his private assistantship. He was making a very large income—in fact, he left, I believe, the largest fortune of anyone in our profession—and the prospect was most attractive. However, after much thought, I decided to stick to public health. The reasons were that I had not taken the primary F.R.C.S. in my undergraduate days as I had no leaning towards general surgery and my only thought had been what would be of value in a public health career. To set up in ophthalmology I would have had to take a surgical qualification and, as was then almost a *sine qua non*, go to Vienna for a year. Further, Mr. Bickerton had two sons, then at school, and, though their father said they probably would not even go in for medicine, it turned out, as I surmised, that they both did, and they are now distinguished ophthalmic surgeons.

I then took a house-physician's appointment at the Liverpool Children's Hospital, and while there took the Cambridge D.P.H. On completion of that appointment I obtained the post of assistant R.M.O. at the London Fever Hospital, the only voluntary fever hospital in the country, which had on its staff such distinguished physicians as William Hunter, Sidney Philip Phillips, C. R. Box, and W. H. (later Sir William) Willcox.

Appointed an M.O.H.

A major personal tragedy then occurred: my father was drowned in a yachting accident. I was invited to succeed him as medical officer of health of the County Borough of Bootle. Without hesitation I accepted, and in June, 1911, my foot was planted on the public health ladder. I have no doubt that the tragic circumstances of my father's death and sympathy for my mother were the real reasons why I was offered the post. I was very young and inexperienced for such a responsible position, but the town council, the other chief officers, and my own staff all vied with each other to make my path easy and to initiate me into the mysteries and methods of local government. The general practitioners of the town were particularly kind in their welcome, and soon I found myself in demand as the local "fever" consultant. I was responsible, with the aid of a resident medical officer, for the fever hospital and took pains to keep my clinical work up to date—an important thing for all public health officers to do.

I was in Bootle for nine years. It was an exciting time in the public health world. There were problems of slum clearance and environmental hygiene. The first Insurance Act was, after bitter controversy, placed on the Statute Book and I was appointed the medical adviser of the local insurance committee, particularly to deal with "sanatorium benefit." The ferment was beginning to work which has produced the welfare State of to-day. The school medical service and the maternity and child welfare service had just started. Tuberculosis dispensaries were provided and tuberculosis officers appointed. In the middle of the first world war, V.D. clinics were organized as part of the public health service. But it was by his epidemiological work that a medical officer of health was mainly judged. Cerebrospinal fever among the troops caused me much work. Devastating epidemics of smallpox, typhus fever, and scarlet fever were within the memory of many then living. Typhoid fever and diphtheria took a heavy toll.

In 1920 I received, by indirect means, an intimation that if I applied for the post of M.O.H. of Blackburn, shortly to be vacant, it would be welcomed. Blackburn, I discovered later, went to great pains in the selection of its chief officers. The town clerk and two or three members of the council went to the towns where likely candidates were in office and made their own enquiries on the spot about the local reputation of the man they had in mind. It was stimulating to go to a new town, to find new problems as well as the old ones, to build

up a service, and to make many new friends. After five years in Blackburn I applied for and obtained the post of M.O.H. of the City and Port of Hull, and after another five years I joined the staff of the L.C.C.

I Move to London

Chance played a considerable part in my various moves, and all caused a temporary drop of income until removal expenses had been cleared. It was the borough engineer, a friend and former colleague of mine, who gave the idea to Blackburn that they should look to Bootle for their new M.O.H. It was the Town Clerk of Blackburn who told Mr. Neville Chamberlain, then Minister of Health, that he should include Hull, where I was then working, in his projected provincial tour. Following on that visit, I was invited in 1928 to serve on a Departmental Committee of the Ministry of Health on the Recruitment and Training of Midwives. A fellow member was Dr. F. N. Kay (later Sir Frederick) Menzies, Medical Officer of Health of the L.C.C. We generally lunched together on committee days and discussed his plans for the administration of the Local Government Act, 1929, by which the hospitals of the Metropolitan Asylums Board and the Metropolitan Boards of Guardians were to be transferred to the L.C.C.

I was very happy in Hull and had even given up my boyhood ambition of becoming M.O.H of Liverpool. Menzies, however, fired my interest in the scope of the work which awaited anyone who joined his staff as principal medical officer, and pressed me to apply. I made a condition that my previous 18 years' pensionable service should be counted, and it was necessary for the L.C.C. to include a special clause in their next General Powers Bill to enable this to be done. A factor in my decision, reached after much vacillation, to leave Hull was that my two children had both decided by then to take up medicine, and my wife and I thought, rightly as it turned out, that we could keep in closer touch with them if we moved to London.

So, after 18 years as head of my own department, I became "second fiddle." Menzies was, however, so tolerant, and reposed such confidence in me, that I did not find it in the least degree irksome, and in fact I welcomed the opportunity of talking over really awkward problems with one of his experience and knowledge of affairs. As the years went on he left more and more to me and eventually retired in 1939.

The Public Health Service

Such is the brief history of my career. It has given me great happiness and satisfaction. It has suited my particular temperament. I like meeting people and have made friends in all walks of life and in many parts of this country and abroad. It may be said that I was fortunate in entering the public health service when I did, and lucky in my various promotions. The elements of luck and chance have already been referred to. Good men are sometimes stranded in small posts because opportunity has never come their way, or when it knocked at the door they did not open it, but in public health the average man seldom fails to attain the average job, and the better than average man generally finishes in the better than average post. It is true that I have lived through and taken an active part in the rise of public health and that some think its best days have passed. It is also true that most of the great sanitary improvements advocated by the early medical officers of health have now been completed and that sanitary engineers are taking an increasingly active part in this work.

Until 1948 the responsibilities of medical officers of health and medical administrators were being gradually built up. Since then there has been a set-back and medical administration of hospitals has, in my view unfortunately, been challenged. I believe that in a national hospital service the need for trained medical administrators with a good clinical background will eventually be recognized. The future of the local health authorities' clinic services is, also, by no means assured, though in urban areas I have no doubt that some clinics will be essential. There is much scope, however, for the man who is interested in the growth and development of children, in physical training, and in the selection of children, handicapped physically or mentally, for special education.

To the man in the street the main role of the M.O.H. is to fight epidemics. He is the hero or the scapegoat of the newspapers when smallpox or poliomyelitis are prevalent. The averted epidemic, however, causes not the slightest ripple of interest. But his present separation from the fever hospital service will reduce his knowledge of epidemic diseases, and steps should be taken to associate him more closely with the prevention of the spread of infectious or contagious disease in all hospitals. Moreover, his horizon should extend now much beyond epidemic diseases, and his field of interest should include the study of morbidity and accidents and the application of preventive measures in any disease or disability where these are practicable.

The M.O.H. of the future will be called upon, increasingly, to interest himself in the problems of mental ill-health. He will also have increasing responsibilities for "aftercare" in its many forms. With the rising cost of hospital services, increasing attention must be given to preventive measures and to home care of the sick. Environmental hygiene cannot be written off as something which will take care of itself. Food and restaurant hygiene still needs much attention; housing conditions are deplorable; atmospheric pollution in towns is serious. There is no shortage of interesting work, and one of the attractions of public health is its great variety and vast potentialities.

Necessary Qualities

There is now a dearth of candidates for the D.P.H., and, just as the shrewd financier buys shares when they are low, so now is the time for the man who is interested in public health to enter this field. In a few years there will be many more posts available than there are good candidates to fill them. I am not so optimistic about the future of the whole-time assistant medical officer without the D.P.H., but even here it is not so bleak as some believe. The man who is going to get on in public health should have certain qualities which are not invariably found in our profession. In addition to a real interest in community health, he must be able to put medical problems in non-technical language. He must be able to endure with forbearance challenges to his opinions and discuss them without heat or rancour. He must, in short, have equability of temperament and always be ready to understand the "other fellow's" point of view. He must be a "good mixer." Above all, he must be able to sense public opinion and to judge when the

moment to advocate some particular project is opportune and when it would be wise to defer it for a time.

Statements are sometimes made that the life of the local authority official and of the junior in a public health department is often one of disappointment and frustration. There are, possibly, local authorities some of whose members treat their officers with scant courtesy and neglect their advice, but I have had no personal experience of them. The general rule is that medical officers of health are the trusted advisers and friends of the members of their authority. Again, there are heads of departments who do not know how to treat their assistants, but this is rare and is not confined to the public health service. When a man is not happy with his local authority and is disliked by his staff there is generally something wrong with him and he would be a misfit wherever he was.

There is a general misconception to the effect that "public health" is an easy life, with regular office hours and long holidays. Nothing could be farther from the truth, at least, for the medical officer of health himself or his principal assistants. He must read widely. He has much field and office work, and innumerable committees to attend, most of which are interesting. Personally, I have always had to try to squeeze into the day more than it would conveniently hold, and have not had any real leisure for years. But, despite all this, I have no regrets about my choice of career. It has given me great opportunities, unforgettable experiences, and, what I value most, a vast number of real friends.

SURGERY

BY

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In planning this series of articles the Editor has, I think, been influenced by Lord Chesterfield's dictum, "Advice is seldom welcome, and those who want it the most like it the least." Following the principle that example is more efficacious than precept, I have been asked to trace the steps whereby I became established as a surgeon and to follow the account by a survey of the current conditions ruling in this branch of medicine.

I doubt if many on their entry into our profession do so with a fixed determination to become surgeons. Of those that do, experiences in their student years or economic reasons often lead to a change in their aspiration or to a reluctant resignation of their first choice. Quite apart from such practical considerations as success in examinations, "there is a quality in events which is apprehended differently by different minds or even by the same mind at different times; any man living knows this embarrassing truth."*

Enthusiasm for the Life

In my own experience I was suddenly fired with enthusiasm for a doctor's life in my last year or so at school. The inspiration was due to the impression made on me by a fiery sermon delivered by a little bearded country parson in which he extolled the medical life. At the time my only knowledge of the profession was founded on the casual contacts with general practitioners such as are common to all of us. I had also spent occasional holidays in South Devon with a doctor uncle. I used to accompany him on his rounds in a high dog-cart; so far as the experience left an impression, his way of life seemed to me to be an agreeable way of making a living. Ignorant as I was of any detailed knowledge of the profession, I readily gave up the idea of a career in engineering, for which I had been designated, and concentrated on the studies necessary for entry to a hospital.

Once at a medical school I worked hard and found human anatomy and physiology intensely interesting. Success in examinations followed and oiled the wheels. I received the first impetus towards a surgical career when I passed the primary examination for the F.R.C.S. in my third year and before starting clinical work. Nowadays such an influence cannot operate, as the examination is taken only after qualification.

An Atmosphere of Activity

In the next stage of training in hospital work one became conscious of an atmosphere of activity and progress on the surgical side. In the early years of this century the seed sown by Lord Lister was coming to its full fruition, and abdominal and urinary surgery had made and was making great strides forward. Medicine, on the other hand, appeared to be relatively static. Pathology, it is true, was in a progressive mood, but its service calls for a particular attitude of mind, and at that time did not appeal as a career to those interested in the personal contacts of clinical work. Prompt success in the final examinations left the choice of house appointments fairly open and I elected for a house-surgeonship. This step had a strong influence on my future career. I found the work much to my taste. I showed enough aptitude to gain the confidence of my seniors and teachers. Further house appointments almost automatically followed and the posts corresponding to registrar and senior surgical registrar ultimately fell to my lot.

This regular and somewhat pedestrian course to the lower steps on the ladder were greatly helped by success in competitive examinations. The posts held guaranteed that in due course one would be considered for the next vacancy on the consultant staff of a teaching or major hospital. I had to wait six years for such advancement, but was meanwhile usefully employed in the Army for five years in the 1914–18 war. Many men interested in and well adapted to a surgical career have no great aptitude for examinations or fail in industry in the crucial period of studentship. For them the course is harder and more sporting and in a greater degree dependent on chance openings. War gave to some the opportunity to gain experience and prove their worth, and others graduated through non-teaching hospitals. In this sphere a man may often get earlier responsibility and more intensive operative experience than are afforded at his parent institution.

Helpful Assets

It may be of interest to attempt to define the characteristics which have enabled successful surgeons of the last generation to achieve their position. I must say that observation of my friends shows that their apparent qualifications vary widely and do not fall into a clear pattern. The day is past when simple mechanical aptitude is of major importance. A measure of practical handiness is certainly necessary and may be essential in such branches as plastic surgery, but the ability to apply an

*Joseph Conrad. *Victory*.

understanding of physiology and pathology to clinical and operative problems is of much greater moment. In general the successful surgeon should possess robust health, energy, and ability to make decisions under circumstances of stress. A measure of philosophic doubt is desirable together with a critical faculty which extends its operation to his own actions. I think a certain degree of optimism is an asset if a man is to remain undismayed and not discouraged by the occasional but inevitable failures in his work. Some seem to have developed an intuitive judgment—perhaps a natural endowment, but also supported by the fruits of observation and criticism of past results. Joseph Conrad, in a generalization, gives, I think, a good picture of what is in my mind. "I don't mean the courage of self-assertion, either moral or physical, but the mere way of it, the trick of the thing, the readiness of mind and the turn of the hand that come without reflection and lead the man to excellence in life, in art, in crime, in virtue, and for the matter of that even in love."

So much for the characteristics which may help to form a surgeon. Surgery itself is no longer a compact section of medicine, though its position remains the same as the French surgeon-pathologist Bichat defined it 150 years ago: "La chirurgie est immense, elle emprunte à la médecine tous ses grands précepts, ou plutôt elle les partage en commun avec elle, car l'art de guérir est un tronc dont la médecine et la chirurgie sont les branches; partout les branches entrelacent leurs rameaux, elles se confondent." The process of fission has been a gradual one, but has now extended so far that the general surgeon in the old-fashioned sense is a rarity: we are all driven to specialize in some degree. Still, the basic training does not change; all specialties are governed by the same physiological and pathological knowledge, and no sections form watertight compartments. Technical complications and developments have imposed segregation on such branches as neuro- and genito-urinary surgery, and the thoracic field is perhaps the latest to qualify. The oldest and simplest part of surgery, that dealing with trauma, is tending to become segregated under the incongruous title "orthopaedic." However, complete specialization in any field does not usually come early in the training period, and often enough depends on the chance of openings rather than on any special aptitude of the aspirant.

The National Health Service

It is perhaps early to assess the effects of the National Health Service organization on surgical practice; it is certainly premature to pass judgment on it. That some such change in the organization of medicine was inevitable has been clear for many years. First, it is a tribute to the effective progress of medicine as a whole, which now offers service of inescapable value to the community. Secondly, the increase in cost of this service has been so great that the poorer members could not fully benefit from it unless the burden was supported by the State. So far as it influences the training and work of surgeons the new scheme has effected a dramatic change in the former so far as it is affected by financial considerations. When I was at hospital the house officer of a teaching hospital was unpaid and the registrars received from two to three hundred a year—lodging and keep were free. Now a man can get a living wage almost as soon as he is qualified, and from then on the scale rises liberally. The chances of obtaining consultant appointments have, I believe, altered little, although at the moment the balance of men in training against probable vacancies is awry. On the financial side the surgeon can still make a good income, although the amount derived from private practice is likely to diminish. In the old days, though some surgeons made much money the majority did not. The position of the man who takes a whole-time post has been greatly improved by the current system. Anyway, no branch of medicine should be estimated on its money-making possibilities; it remains a profession and not a trade.

How far bureaucratic control is likely to creep in is difficult to estimate. Medical representation on all effective committees is fair and can, I think, maintain the freedom of the profession. The essential work of the surgeon and his responsibility to his patients and the craft remain unimpaired. Though medicine is at present in the van of the advance, surgery is very much alive, and I think offers an attractive and rewarding way of life for those suitably equipped for its pursuit.

PRIVATE PRACTICE

BY

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Picking me out as, I suppose, an elderly urban praetitioner—a sort of ageing mariner—the Editor asked me to look back and tell him about my voyage. Why did I undertake it? Did I sail or drift? What winds and tides influenced my course? How has the trip worked out? What have I to say to intending adventurers? I think I neither sailed nor drifted but walked, guided by a sense of direction rather than following a goal, avoiding main roads but using tracks and paths that seemed to be going my way, getting to nowhere very special but seeing some good country and enjoying the walk. The ground I trod has been so changed that I doubt if any young traveller can follow, even roughly, the same route, which diminishes the practical value of my story. I cannot present myself as an example either to follow or to shun, but the tale may provide something to think about, and, since it is asked for, here it is.

Choice of Career

One summer holiday evening when I was rising 17 my father said it was time to decide what I wanted to be. We had some discussion, but I never thought seriously of being anything but a doctor. I thought, boylike, it would be fun to learn the physical sciences; more wisely, I thought I should be joining a great and high profession; no doubt I liked the idea of being of some use to my fellow men; but far more definitely and warmly I wished to follow the family traditions. Ancestor worship, *à la chinoise*, is a very powerful and enduring influence.

To-day a boy rash enough to opt for medicine at 16 seldom has any choice but to plant himself on that long, narrow educational ladder that leads to qualification. He is assumed to have "joined the science side." Forty years ago it was still not rare to continue a classical education with medicine in view, and I did so. A smattering of physics was added as a sop to Aesculapius. I cannot say how often I bless my parents, my teachers, and the

kind Fates for those two last years of *literae humaniores* at school. I am sure there is no better preparation for the study of science or the practice of medicine.

Eight summers later I was within sight of qualifying. Besides the two industrious years at school, I had enjoyed three, less industrious but superlatively happy, at an ancient university and three, both industrious and happy, at a London teaching hospital. Chemistry and physics, on closer acquaintance, were scarcely the glamorous creatures they had seemed, glimpsed through the crack of the laboratory door, but biology and physiology made amends. Anatomy, once one got down to it, London fashion, was not unattractive, and the clinical arts were as fascinating at the first encounter as they have remained ever since. I had discovered, with surprise, that I found medicine more exciting than surgery, but I doubt if I pictured myself as a budding physician. I was to take the conjoint in stages next year, hope for a house job, attempt an M.B., and then think. Plans went no further.

Meantime life was busy and happy and the world very good. It seemed to us to be at once stable at bottom and in a state of delightful and beneficent flux and ferment on top. But this was July, 1914, and we were wrong about the stability. No plans withstood, even for a week, the impact of that sudden war. No one really conducted "business as usual." Students, teachers, even examiners (I must presume) felt the fervour of the hour, and by October I was qualified—a premature medical man.

Wartime Experience

I shed a little, but only a little, of my lanugo as one of two "medical receiving officers"—wartime creations—at my hospital and then "joined up." In the next four years those in authority, I myself, and the Fates, acting more or less in concert, really determined my medical future. The war took its appointed course and I cannot remember being asked very often what I wanted to do in it. But had I pressed for it I feel sure I could have spent at least some time in hospitals and C.C.S.s practising medicine, gaining clinical experience, perhaps even advancing in status. I thought medical soldiering the better life, and the authorities seemed not to think a lad of brilliant promise was being wasted "up the line," so I spent my time among fighting units and field ambulances. By the end of the war I had lost more lanugo; I knew something of men, health, and hygiene; a near-mortal illness had taught me a bit about nursing and how the patient sees it; and I knew more than I had about myself, but of medicine, surgery, and pathology, to say nothing of obstetrics, I knew far less than I had known four years earlier.

To cap it all, being demobilized, I married and wrote off, in my own mind, whatever faint aspirings to consultant rank I could find there. They were faint enough. I think I have always liked all-roundness and the all-rounder better than specialism and the specialist, and I have never felt the lure of the rare. Given the appropriate qualities of hand, mind, or intellect I can imagine wanting to be, for example, a surgeon or a neurologist or becoming enamoured of, say, ophthalmology, but in general surely it is more satisfying to be the man in charge than to be the man called in. To have to stay and see the job through is an exacting but a wholesome discipline, seldom imposed on the consultant, and though, heaven knows, I have been and shall again be thankful to share responsibility, I still wish first to accept it.

For these and kindred reasons I was a willing enough candidate for general practice, but not too well equipped. Apart from things forgotten, there were the "special departments." The year 1915, which should have gone to these, went to the war, and it has never been possible to retrieve those lost months. I sometimes wonder if either the student or his teachers always understand that it is the candidate for general practice who most needs pregraduate instruction in these departments. The embryo specialist can wait.

Developing a Practice

To return to the story. It was strange to come back from the world of the Western Front to the world of England. We found a country licking its wounds and tearing off its illusions and supposed illusions till it came near to stripping itself spiritually naked, but universal regulation had not set in and the medical profession, collectively and individually, enjoyed a glorious, almost an absolute, freedom.

My mother hospital was very kind—welcomed me back, taught me, and gave me work according to my needs, first whole-time and then part-time. Examiners also seemed friendly. To cut loose altogether from hospitals appeared less and less desirable, yet if I entered an established practice it seemed almost inevitable. I looked half-heartedly at practices, feeling distinctly "choosy." A good solid country doctor looked at me and thought I hadn't the physique for the hard work—I do not know if he was right or not. The end of the matter was that I sat down in a part of London where it was pleasant to live and there happened to be a house and where one more doctor could not matter to the many established practitioners. I joined the London panel.

I filled my days with part-time work away from home, leaving only little gaps in which I could see a patient if anyone asked me to do so. The work was at first chiefly hospital work, some paid, some honorary—and it continued, in one form or another, for many years. Part-time work has included an infant welfare clinic, pensions boards, recruiting boards, and work in the school medical service. Patients came very slowly, almost always—then and ever since—urged or sent by some friendly medical man, occasionally by a friendly patient, almost never "out of the street," and very seldom, so far as I know, detached from any neighbouring practitioner.

In the fullness of time there was something that might be called a practice, and while it was growing I was never idle or unemployed. Practice and "extramural" work reciprocated in every way. I am sure that ideally every practitioner should work also at a hospital, clinic, or school, and vice versa. It is hard to know whether the clinic doctor or the family doctor has the more to learn by seeing the other man's "material" and facing his clinical problems.

Deductions

So much for "how I began." What are the deductions? I seem to myself to have exploded several zealously propagated myths about entry into practice in the bad old days. Such was the tolerance and friendliness of doctors, such the flexibility of the medical "set-up" in London thirty to twenty years ago, that there

was no difficulty in doing what I have described. I did not borrow money, plunge into debt, or live in grinding poverty; I did not separate myself from hospitals or abandon their clinical standards; I never sat in a consulting-room twiddling my thumbs; I entered into no cut-throat competition with my medical neighbours; competitors of course we are, to the great advantage of our patients, but there is no cutting of throats, and if there is jealousy or hostility it is marvellous how we disguise it. To judge by behaviour we are friends.

I should like here to explode one more myth—namely, that in private practice one must sell one's integrity to any well-to-do patient who covets it. Sooner or later almost everyone doing anything worth doing is offered a price for his or her soul. A medical man is no exception, but he is not in the least bound to accept the offer, which, incidentally, comes at least as often and as persuasively from a public body as from a patient.

Rewards of Practice

The chief reward, in my experience, is the clinical work—diagnosis, prognosis, and treatment. It is exceedingly difficult, but not impossibly so, always new, entirely fascinating. There is no danger whatever of the art's dwindling to an exact science. Patients, whether they know it or not, continue to need us badly; neither hygienists nor teams of specialists can take our place. Intrinsically general practice, even if single-handed, is not outmoded—granted, that is, a proper command of ancillary, specialized, and institutional resources. Our present troubles are extrinsic and, in a sense, accidental. The other half of the Hippocratic art—winning and keeping the patient's confidence, subduing, influencing, or outflanking his circumstances, inducing him and his friends to co-operate for his good—is even more difficult than the clinical part. There is no escaping it, but I imagine we mostly find it far the less fascinating and rewarding portion, and some dislike it so much that they take shelter in institutions where it is relatively avoidable.

The intending practitioner should recognize that patients, their friends, and their circumstances will be his care no less than their diseases. It is probably a mistake to hope that one's chief reward will be in doing good to one's fellow men and receiving their well-earned thanks. Our fellow men like to have pain relieved, most of them still wish to live, but many are not prepared to face the implications and responsibilities of being quite well. The gratitude and the ingratitude we receive have often small relation to our deserts. Trying to keep people well is a hard and not seldom an ungrateful task.

By and large I think we have failed as a profession to make people understand *what we are for*. Very many are blind to our problems, difficulties, and ways of thought, and are equally mistaken concerning our knowledge and powers on the one hand and our ignorances and impotences on the other. Much of this misconception is our own fault. If we could set it right perhaps we should, as a profession and as individual doctors, get a fairer deal.

The *British Journal of Tuberculosis* (Festival Number) quotes this extract from Pliny's *Natural History*: "The cure for phthisis is affected by taking a wolf's liver boiled in wine; the brain of a sow which has been fed upon herbs; or the flesh of a she-ass, eaten with the broth; the last more in particular being the one that is employed by the people of Achaia. Smoke of dried cow-dung inhaled through a reed is remarkably good for phthisis."

THE COUNTRY DOCTOR

BY

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"There is a providence that shapes our ends, rough hew them how we will," muttered the surgeon as he demonstrated circumcision at the children's hospital during my first house appointment. This misquotation applied equally to my entry into general practice.

The scene was lunch-time in the board room some months later. The medical superintendent looked up from a letter and said, "Who can go down into the country to-morrow to look at a practice?" As everyone else seemed to be well on the road to Harley Street, the finger inexorably pinned down myself, in spite of my protests that I was going shortly for an interview to the Malay Medical Service. "We cannot let the hospital down: someone must at any rate go and look, please. It will give you a nice outing, and a glimpse of a country practice." Next day found me in a strange bit of England. From the station a smart but very old car took me to a large Georgian house right in the middle of a narrow main street of a small town. Inside was fumed oak furniture, a vast sideboard covered with silver plate, curtains of plush and lace, and a general semi-religious gloom. The old man and his wife were charming, and obviously he had not long to live. He was trying to decide whether I would be the right person to leave in charge of the community which he had looked after for 40 years.

He took me down to the surgery where he had worked all his life, and I found a dingy little room papered in black with pale green stripes. Ivy climbed in at the window, and damp, mildew, and dirt contended with unopened samples and periodicals. There was no running water, and a dim naked gas jet for light. In the dispensary the bottles stood three deep, coated with dust and with labels which were strange even when I could decipher them. Pride of place was given to a large bowl full of leeches (later on one escaped, and my wife kept clear for weeks afterwards). At the end of the day I said polite good-byes. We had a good laugh when I arrived back in hospital, but I was haunted by the old doctor's pathetic hope that I would after all decide to take the practice.

A Challenge

Aspiring consultants are advised to keep their emotions in cold storage, but the purchase of a practice allowed a young general practitioner to marry at once, with an assured income. This urge to marry had decided many of my friends, and my turn came simultaneously with the visit I have described. And, apart from the charm of the genuine country, there seemed to be a challenge in the very antiquity of the set-up. Here was something to get one's teeth into, to be able to start almost from the beginning to build up a modern practice.

It has been fun. Everyone thinks his work has been hard, and country practice is no exception, but there was always the excitement of introducing each innovation. Running water was the first, for on my arrival the old doctor used eagerly to await my evening visit, and his first question was, "How many barrels to-day?" An odd question from the family doctor, but

quite understandable when I say that the water to fill the medicine bottles came from an old cider barrel precariously wedged up near the ceiling. A greenish tinge in the liquid warned that it was running low, and a maid—a real maid in black with a frilly white apron, cap, and streamers—was summoned down the long passage to climb up a step-ladder and refill the barrel with a large polished brass jug. Three barrels meant that the young man was going down well!

Entry into practice nowadays is very different. No longer can you enter an open market and, having selected the practice to your taste, can you put your hand into your own pocket or that of a complaisant bank. Some people say that it is very hard now, and yet experience shows that young men who really want to settle in a particular neighbourhood still can do so if they have patience and set about it the right way. If a young man takes a house job in a provincial hospital, he has six months in which to get to know the local general practitioners and to let it be known that he is anxious to settle down in the neighbourhood. If he is good at his job, and becomes well liked by the doctors he serves, he will stand a very good chance of being taken on by one of them during the next year or two, for we are all mortal and the strain of modern life takes its toll.

Rural Practice

The essence of country practice is the self-contained community. Within the memory of all the older people, the country doctor was the whole of medicine and surgery. Very occasionally the "case" was beyond him, and he then sent for a consultant from London. The great man arrived by train—sometimes a special. If an operation were decided upon it was carried out there and then upon the kitchen table or a sofa. Sometimes again a patient would be sent up to a London hospital for an opinion, which might possibly involve some special "test" outside the country doctor's range. But on the whole the community depended solely on the one or two men in the immediate neighbourhood, and they seldom thought of consulting a doctor except when the illness was well under way. The doctor's connexion with what is called "positive health" or preventive medicine had not yet occurred, and even 20 years ago this tradition was still very strong.

It was taken to be an admission of weakness in a young doctor to suggest more than an occasional second opinion or laboratory investigation; and it is still a fact that country people tend to be satisfied with the opinion of their doctor. His suggestion of further investigation is taken quite well, but there is always a feeling, sometimes openly expressed, that the patient would much rather his own doctor did the whole thing himself.

Here then was the widest field that a young doctor could desire—a chance to start from scratch and to build up a modern practice in whatever shape he chose with regard to premises, scope, size, and tradition. It is most important for any young man who is going into general practice to adopt this attitude to the various vacancies at which he looks; the further they fall short of good modern practice the louder is the challenge and the greater is *his* opportunity.

Changes in Social and Economic Conditions

There has, of course, been a most profound change in the whole economy of the countryside during the past quarter of a century, and this has mainly been due to better communications. Rural communities are no longer self-contained. Because of buses and cars, the villages have learnt to depend on neighbouring towns for nearly all the necessities and luxuries of life, and the journey to a hospital 15 miles away is no longer spoken of as literally "going abroad." At the same time rural housing has been revolutionized. Twenty years ago there was no electricity, only very limited gas, main water, and main drains in a small radius; nine-tenths of the houses had none of these. Imagine what it meant to conduct a difficult forceps case under these conditions, or to do a post-mortem examination in the depth of winter with the local village well frozen. I remember one such occasion, one night when I was on my way to a New Year's Eve dance, dressed in "tails." My assistant was the village policeman, who was so well fortified with whisky that he upset one of the two buckets of water that the village had managed to provide, and nearly burnt the whole place down by upsetting the Tilley lamp, which had been specially borrowed from a local pub.

Along with the primitive conditions of housing and sanitation, farming was in one of its phases of depression. Wages were low, there was unemployment, and many farmers had a hard struggle to keep going at all. The result was considerable poverty, along with its attendant diseases—malnutrition, rickets, tuberculosis, rheumatism, and rheumatic fever. I remember a labourer's cottage at Christmas time. He was ill in bed with rheumatic fever, and his wife was only just up a week after her eighth confinement. Although there was snow on the ground, they could afford no more than one fire to cook by, and the door was opened to me by a child of 6 clad only in an old cut-down shirt of her father's; I remember her little bare feet on the cold stone floor. Such conditions produced most of the illness in a country practice, and epidemics such as scarlet fever found many victims with only a poor resistance.

The enormously changed social conditions and the prosperity of the agricultural worker have completely changed the pattern of illness in the country to-day. Deficiency diseases are extremely rare, but rheumatism in various forms still ranks high as a cause of disability. There are few workers on the land of over 50 who have not some arthritis of their spine, hips, or knees, whether they are labourers or farmers; but the general picture otherwise is one of robust physical health. In addition, the doctor has really powerful weapons against acute illness. Pneumonia in the old days meant anxious visits twice a day for a week or ten days, whereas now one hardly ever sees the old-fashioned lobar type at all. This does not mean that there is less general illness, for, just as the community is subject to different stresses, the patient tends to break down in other ways. There seems to be an enormous increase of minor neurosis with its attendant signs in the digestive and cardiovascular systems, and peptic ulcers, coronary disease, and hyperpiesis are as common now as they used to be in the cities.

Hospital Facilities

Country practice has changed equally when one considers hospital facilities. At first there was only one general hospital, in the local county town 15 miles away, and it boasted one resident house officer. If you rang up one of the general-practitioner surgeons to operate on a patient, he expected you to come in to give the

anaesthetic yourself, and if your technique gave him and the patient what might be called "a comfortable ride" he nearly always asked you to stay and help him with two or three more. It was a very sound postgraduate education actually to see the inside of every patient you sent in for operation.

Now there are five good general hospitals within easy reach, and admission to one of them is rapid and efficient. However, we are losing touch with this side of medicine and we must be on our guard against developing into mere sorting clerks.

Wide Range of Activity

Even so, country practice still gives a chance to practise the *whole* of medicine. It is very much up to the individual to decide how far he will deal with each patient—in fact he has to be careful sometimes not to give way to the patient's confident plea to "have a go yourself, Doctor." I think that country people go to the doctor less readily than those in towns. For one thing they usually have further to go, and for another their lives are perhaps more fully occupied. They also have a very independent attitude, and will often have tried old-fashioned remedies, some of which are not only quite reasonable but remarkably successful. They have considerable knowledge and experience of looking after their own sick animals, and often apply the same principles to their own families.

The result is that every surgery is packed with interest and excitement. I admit that it does not always seem so, especially when you are so tired and harassed that you are unwilling to see anything but the drudgery. Even then, after the first case or two, interest is bound to be sharply awakened by something out of the ordinary. You never know what type of case is coming in next, and a single consulting hour will put you through a complete course of mental gymnastics ranging over the whole of the body and mind of a series of patients. The great advantage the country doctor has over the consultant is that he knows the background of nearly every patient—the heredity, the environment, and the aetiology of the disease; as a result, a great deal of his work is what is now called "social medicine"—that is, the treatment of the patient himself, and the conditions which have led to a breakdown in the normal working of his body or mind rather than just the academic application of therapeutics to a certain set of symptoms and signs.

Unlike the consultant, you have also to live alongside your failures. That old case of poliomyelitis who waves to you from his wheel chair—you said he was suffering from influenza until the onset of paralysis. Your baker's roundsman gives you a cheery greeting, yet years ago his child died from a pelvic abscess, operated upon too late during an epidemic of gastro-enteritis. But in your daily contact you will also be heartened by successes. Almost every house you pass has its story of some successful fight with illness.

The rewards of the country doctor are not spectacular. His income and way of life are modest, and, as the plain infantryman of the profession, his likelihood of winning medals is small. When he dies he is unlikely to have many letters either before or after his name. These things are, however, superficialities when compared with the rich full life he leads, the satisfaction of a good job well done, and the unspoken gratitude and friendship of the small close community which he serves.

COLLIERY PRACTICE

BY

D. G. WILLIAMS, M.R.C.S., L.R.C.P.

Taffs Well, Glamorgan

When I decided to study medicine as a career I already had some relations and acquaintances who were in general practice, some in an industrial area; they seemed quite happy and satisfied in their work. Right from the start my intention was to enter general practice as soon as I was qualified, and so I was inclined to look at the whole of my training from that point of view.

The preliminary studies were much as I had expected them to be. The teachers and demonstrators were always ready to give their time to help those who wanted to learn; those who wanted to slack were allowed to slack, and a few fell by the wayside. Looking back on my student days in King's I now realize how fortunate I was in my chiefs and tutors. I am still impressed by their ability in their respective spheres, but am more impressed by their care and patience in teaching their "firm." A student might give a whole page of very good medical history, and an impressive list of symptoms, but if he could not give a simple analysis of the urine, or had missed an obvious abnormality in his examination of the patient, he was quietly and efficiently made to feel that he had failed to carry out his job. It is not the brilliant diagnosis, the meticulous care given to an operation for hare-lip and cleft-palate, or even the perfect execution of a nephrectomy or Wertheim's operation that I can recollect most clearly now, it is the insistence of my tutors on a thorough examination of the patient, and their insistence on the same phrase in all departments, "Examine the patient." The student might be excused for making a wrong diagnosis, but he was not excused for making a superficial examination or for forgetting what had been discussed during the last "round."

Perhaps we did not learn much that is of direct use in an industrial practice, but we did learn the importance of examining the patient and how to do it. There was little or no guidance given to the student on his future career. Towards the end of the course one of our chiefs might ask what we intended to do later, but that was usually just from personal interest and not from any desire or inclination to give advice. It is very likely that guidance would have been freely given if asked for, but it certainly did not seem part of the duties of our chiefs or of the dean to give such advice as a matter of course.

An Assistantship

Towards the end of my training I did seriously think of specializing in children's diseases, which I found most interesting. In order to specialize, the student required a good record as a medical student, a sound financial background, and possibly some outside influence, and it involved a long wait at very small pay for a suitable post. However, financial stringency and the time it took in those days to become established as a specialist deterred me from the venture. Nowadays the remuneration during the waiting period is tolerable and compares favourably with that obtaining during the first few years of general practice.

After qualifying I went immediately as an assistant in a colliery practice in South Wales. A simple course in

first aid when a student would have been a great help for me at the beginning. Fortunately my principal did not believe in nursing his assistants, though he was always ready to advise and help when asked to do so. He gave his assistants a list of "calls" after the morning surgery—usually a full day's work for a beginner—let him find out all about those patients, order his own remedies, and make any arrangements he thought necessary for further treatment. There was, of course, one unwritten law, and that was never to change any treatment without consulting the principal. He took the common-sense view that, if you could satisfy the examiners that you were fit to be a duly qualified medical practitioner, you were obviously fit to look after the patients.

Soon I had learned all that was necessary about certification, the Compensation Act, and similar routine work in the practice, and decided to take on a practice on my own. In those days there were three ways of entering general practice. The first was to buy a practice, usually with the promise of succession to all appointments; the second was to succeed a relation, usually a father or father-in-law; and the third was to "put up a plate" in an expanding area. The first required a lot of capital followed by hard work; the second required a lot of tact; and the third required a lot of patience as well as hard work.

My Own Practice

In less than a year after qualifying I bought a small colliery practice on the fringes of a coalfield, and was later appointed colliery surgeon. The doctor was then usually chosen by the miners' lodge. The practice was much more varied than my previous one and included steel-workers, farmers, and business men as well as coal-miners, and a fair amount of private practice. The colliers at that time were "tied" to the colliery doctor, who was paid by a levy from the workmen, called "surgeon's pence." For this the doctor undertook to look after the miners and their families, supply them with most of the drugs and dressings, do all midwifery free of charge, some minor operations, and attend to all accidents at the pit. The work was hard and exacting but extremely interesting and varied. It allowed very little free time, and few indeed of the doctors in an industrial practice had much time for hobbies or self-culture. Very few of the illnesses followed the textbook or what I had been taught about diseases. In hospital practice most of them would be classified as minor ailments, P.U.O.s, or of no importance. The fact that many of these minor ailments could be followed by serious diseases had to be learned by experience.

Fortunately my relations with my colleagues were quite satisfactory, though there was keen competition. I soon had an agreement with the two practitioners on each side of my practice, making it possible for each of us to have at least one afternoon a week off, with an occasional Sunday. The ethical standard of the profession was high. If any of us attended the patient of a doctor who had to be away for any reason whatsoever, we always let that doctor know the following day, usually by a personal message or by telephone. It can hardly be said that the ethical standard to-day is as high as it was then.

The practice expanded steadily, though the colliery to which I had been appointed closed down within a few years of my appointment, and I had an assistant. Although the work was not easier, one was less tied to the spot. By this time I knew most of the patients very well, and their interrelationships, and more and more I treated the patient and his relations as much as I treated the disease.

So far, the industrial medical practitioner had very little to do with the prevention of disease, though it was essential that he should know more than the average practitioner about the diseases peculiar to the industries in his area, such as dust diseases in coal-mines and quarries, dehydration in blast-furnace workers, and the risks of electric shock and burns in power-generating stations.

Part-time Appointments

About twelve years ago a large number of new industries were established in the district, and the practice expanded very rapidly. The larger of these undertakings appointed a part-time medical officer to look after the health of their employees while at their work. I acted, and still act, in that capacity to a number of these factories. Put simply, this involves attendance at a factory clinic for two or three sessions a week, advising the management on first-aid and the prevention of industrial diseases, and the selection of employees suitable for work in the specialized occupations in the factory. In the smaller factories the medical officer simply advises and supervises the processes when requested, making only occasional visits. This adds a great deal to the interest of an industrial practice, as the medical officer has to keep abreast of the latest methods of processing. Medical records are kept at the factories under the care of the nurse in charge and are quite secret. The amount of industrial disease, particularly of industrial dermatitis, chest diseases, oil rashes, and septic fingers, and minor ailments that can be avoided by careful supervision and reasonable precautions is quite impressive and saves thousands of working days every year throughout the country.

Curiously enough the employees themselves seemed very loath to take advantage of these precautions at first and had to be coaxed or reasoned with to give them a fair trial. Very soon they saw the advantages, and most of them carry out their instructions in a satisfactory manner. We still come across an occasional young girl with beautiful hair who risks a scalping rather than wear a head-dress which is unbecoming.

Care of the Workers

On looking back over a period of 30 years it is obvious that a great change has come over general practice in an industrial area. The amount of care given to the welfare of the workers and the attention given to restoring the injured to health and fitness have increased very much. Again, the provision of alternative work, which in the old days was almost impossible in South Wales, has received much attention. The outstanding examples of this advance are the remploy factory and the rehabilitation centre. At the remploy factory the disabled person, whether his disablement is due to injury or disease, is taught to do various jobs within his capacity, is constantly under care and supervision, and is never expected to do any work beyond his capabilities. At the rehabilitation centre the disabled man is gradually tuned up to do more work, is sometimes taught another job, and often is placed in employment at the end of his training either in his old work or in a new one.

Much progress has been done in the prevention of industrial diseases, though rather slowly, and much still

remains to be done. Some of the problems are hardly medical problems at all; they belong to the sphere of the engineers. The prevention of pneumoconiosis and dust diseases, for example, is simply a problem of dust suppression. The more dust there is in a colliery the greater the risk of contracting pneumoconiosis, as has been shown by the increased incidence of pneumoconiosis after the introduction of modern machinery at the coal-face. The industrial medical practitioner can play an important part in this work, and it is essential that he should possess sound clinical experience before undertaking industrial medical work.

The advances in medicine in general during the past 30 years have not affected general practice in an industrial area much more than general practice in any other area. The fear of infected wounds, cellulitis, and sepsis generally still exists, but has lost a good deal of its terror with the introduction of sulphonamides, penicillin, and other antibiotics.

Perhaps the greatest boon during the last few years is the provision of an excellent ambulance service. When there is a serious accident the ambulance is on the scene within a few minutes. Long delays in getting the severely injured person to hospital, with increasing risk of shock, collapse, and possibly death, are a thing of the past in this district. One authority is responsible for the ambulance service. The ambulance attendants are on duty for 24 hours a day, and are always ready to respond to a call at a moment's notice.

I should hesitate to give an opinion on the future of general practice in an industrial area, and feel too diffident to give advice on anyone's future career. The times are too unsettled in medicine. I have tried to give a fair picture of an industrial practice as it has appeared to me. The qualities required to become a good medical practitioner are much the same in whatever type of district one practises. The doctor's reward must be mainly in his work, because his remuneration is much below what it should be even when compared with other branches of the profession.

Recognizing the unprecedented opportunity for world-wide research on tuberculosis presented by the International Tuberculosis Campaign as well as the need for scientific investigation on problems connected with mass B.C.G. vaccination, W.H.O. established in February, 1949, a Tuberculosis Research Office in Copenhagen to evaluate the results of the campaign, recognizing that a statistical report of the tuberculin testing and vaccination in each country would be best prepared by a central office as a permanent record for international comparison and future follow-up. This is the first time that mass tuberculosis testing has been carried out in almost all of the B.C.G. countries, and the information so obtained should serve as a valuable index of tuberculosis infection for planning national tuberculosis control, as well as a substantial contribution towards a global picture of the disease. Recent effort has been directed towards the problem of tuberculin retesting after vaccination. Retesting was performed in the past only on a limited scale. Of those retested, considerable differences have been observed in the tuberculin response in a number of places. It was formerly thought that the vaccines used were perhaps at fault. More extensive and systematic retesting in Greece, Syria, Egypt, and India has now been completed, and analyses of these data have brought out significant geographic differences in the results even where the same batch of vaccine was used. The anticipated high percentage of tuberculin reactors after B.C.G. vaccination has not been uniformly realized. This is in striking contrast to the satisfactory results recently obtained among all the vaccinated children in Denmark.

THE FULL-TIME CONSULTANT

BY

F. AVERY JONES, M.D., F.R.C.P.

Physician, Central Middlesex Hospital; Consultant in Gastro-enterology to the Postgraduate Medical School of London, St. Mark's Hospital, and the Royal Navy

On leaving school I wanted to take up medicine, but my chances of doing so at that time were nebulous, although there was a possibility that I might be able to begin later. I entered Barclays Bank and began to work for the examinations of the Institute of Bankers, but at the same time attended evening classes in physics and added this subject to my school certificate. This proved useful, as after a year arrangements were made for me to go to a northern university. I much preferred, however, the idea of coming to London, so I sat for, and won, an entrance scholarship at St. Bartholomew's Hospital, which assured this. I found that a proportion of my fellow-students had had some contact with other work before beginning medicine, and I am certain that my year's experience was in no way wasted.

Early in my anatomy days I developed an interest in surgery, which undoubtedly arose from some dexterity at dissection, and while still in the Rooms I acquired the art of tying knots in the correct surgical technique. Having passed my second M.B., I decided to sit for the primary fellowship, which in those days was commonly taken a few months after the second M.B. However, to my great disappointment, and in spite of having worked hard for it, I joined the 96% of medical men who at one time or another during their medical career fail an examination.

Medical Clerking

My interest in surgery persisted, until I began to do my second three months of medical clerking under Professor, now Sir, Francis Fraser, on the medical professorial unit. Professor Fraser was particularly skilful in drawing out the basic knowledge of anatomy and physiology of his students and in making them apply it to the patient under discussion. Every clerk in turn had to ask a sensible question, or make a reasonable contribution to the discussion. This meant that students had to concentrate all the time instead of listening dreamily to a prearranged exposition. To my mind this is the most effective method of teaching, and indeed I remember clearly to this day many of the cases taken by Professor Fraser on his Tuesday afternoon rounds.

Rather to my surprise, I found that medicine did not consist of clear-cut aetiologies and accepted treatments, a fact hidden from me during my previous teaching, which had consisted in the expounding of classified lists, mainly devised with a thought to the final examination. The picture of unsolved problems in medicine, so clearly presented to us by Professor Fraser, greatly stimulated my interest in medicine and took my ambition away from the cut and haemostasis of surgery. Within a short time I had planned to work towards getting his house-physician appointment, and I began to write up my cases as completely as possible and to follow them with as much detail as I could. I realized that I should have to begin working for the final-year medical scholarship, and I put my name down for pathology clerking on Professor Fraser's firm. In the important

final-year scholarship, the medical Brackenbury, I was *proxime accessit*; but I was fortunate, for the winner, who had taken full advantage of a period of illness to work for this prize, could not qualify for some months, and I was therefore without his competition for the unit house appointment, which he obtained later.

An Essential Experience

Soon after qualifying I did several locum appointments in general practice, which I personally regard as an essential experience. Admittedly I was fortunate in being able to combine medicine and a semi-holiday in St. Ives, but I had to pay for my games of golf and tennis by delivering a breech with extended legs.

Soon after my appointment as house-physician Professor Fraser left for the Postgraduate Medical School, and I began under his successor, Professor Witts. It would not take anyone long working as a house-physician under Professor Witts before he would want to become his chief assistant. Professor Witts had all the attributes one wanted in a chief. His wide interests, his ability to define medical problems, and his exceptional clarity of exposition made a great impression on his junior staff. The hall-mark of the unit H.P. was the excellence of his medical notes, which at this time had reached an exceptionally high standard. As a contribution to the maintenance of this standard, and to my chances of getting a chief assistantship, I bought a typewriter and a book on typing, and before long was able to present my notes in an easily read form. The full working-out and recording of medical histories became intensely interesting, and it was at this time that I acquired an interest in gastric and duodenal ulcer which has since remained my main research activity.

I was fortunate in working on a firm where there was a very close interchange of ideas between the medical and surgical professorial units. My earlier interest in surgery still lingered, and when, a year later, I became second assistant on the medical professorial unit I was able to spend part of my time working out the problems of post-operative care with Mr. Naunton Morgan.

During my first year as an assistant on the unit, I read steadily with a view to taking the M.D. and M.R.C.P., but continued with my teaching and research work. The staff rounds and the lunch table, together with the medical journals, really gave one the background of current medicine which provided the confidence necessary for successfully taking these examinations.

One's salary as a junior assistant was relatively small, but nevertheless there were methods of augmenting one's income. I applied for, and was elected to, a research scholarship, and was later appointed as a part-time medical officer in the follow-up clinic. In those days there was a big demand for coaching, and a daily session was a valuable source of income, as well as being a useful introduction to teaching. Although I was entirely self-supporting after qualification, I never felt any financial hardship from remaining as a chief assistant, and such pleasures as a holiday abroad each year were easily within my means.

I recall my time on the medical unit under Professor Fraser and Professor Witts, and later under Professor Christie, with the greatest pleasure. I had found a real interest in medicine, and I had had the good fortune to see personal medicine practised at its best and also to learn how to tackle medical problems.

Objective in Medicine

After some three years as chief assistant I had to try to visualize my objective in medicine. To continue in an academic career really meant leaving medicine for a time and going back to acquire experience in physiology or pharmacology, which, ideally, should have been done before my appointment to the unit. By this time, however, I had become too much immersed in various clinical problems to want to leave them, and I decided I would try to stay in clinical practice. At this time I wrote to Professor Fraser and asked for his advice, which he kindly gave me one Sunday afternoon. The Middlesex County Council was developing full-time appointments for physicians, and he thought that in due course I should apply for such a post.

These appointments, however, were few and far between, and meanwhile I had to consider an alternative plan. In the unit I had been working full-time, but with my next appointment as casualty physician I was free to undertake consulting practice. I acquired a blood-transfusion set, a supply of syringes, an intermittent-venous-occlusion apparatus, and a share of a consulting-room. Devilling for various members of the senior staff soon came my way, and was a very valuable introduction to the technique of consulting practice. The chance of getting on the staff of one's teaching hospital, however, seemed small, in view of the competition, and I began to make inquiries in centres outside London where there might be an opening for a physician.

Full-time Hospital Work

Fortunately, at this point the Middlesex County Council advertised for a full-time physician with a special interest in gastro-enterology, and I was appointed to my present post. This gave me exactly what I wanted—a gastro-enterological department which I could build up, with good opportunities for organizing clinical research work. The bar to private practice was no hardship, as my main experience had in fact been in full-time work on the academic unit.

As a full-time physician to a regional hospital one helped to provide a medical service essentially for the local population, and this raised many medical and administrative problems which I had not previously encountered at my teaching hospital. The Middlesex County Council was a pioneer in providing a really comprehensive and adequate medical service for its region, and much credit is due to its chief medical officers, Dr. J. Tate, followed by Dr. H. M. C. Macaulay, and to the very remarkable chairman of the Public Health Committee, Mrs. Flora Baker, C.B.E., who for 25 years guided and inspired the committee. At each of the seven general hospitals there was a nucleus of full-time senior staff, who were able to put the energy and time which others gave to private consulting practice to the working out of a comprehensive hospital service which included provision for tuberculosis, maternity, mental illness, and chronic sick, as well as for acute medicine and surgery. The Middlesex County Council took over the old infirmaries, and within 15 years had built them up into modern hospitals capable of taking a share in undergraduate teaching, as well as producing a considerable amount of clinical research work.

I had to undertake a major share in the administration of this large hospital, and was retained in my appoint-

ment by the Central Medical War Committee. During the war I appointed myself as my own house-physician, and with the help of a Czech physician maintained a twenty-four-hour service in a very busy medical unit, but nevertheless in my spare time kept special records of groups of cases for subsequent analysis.

After the war, with this background of enlightened administration, my department flourished, and I have been able to build up a well-staffed unit, which is related essentially to the diet kitchen and deals mainly with patients on a special diet, such as those with ulcer, diabetes, colitis, jaundice, etc. My surgical colleagues fortunately allow me to keep my own surgical cases in my wards post-operatively, and to supervise their subsequent follow-up. My previous experience in the medical and surgical units at Bart's had given me just the right experience to undertake this work. The medical care of surgical patients can provide a physician with a great deal of intricate work, particularly in relation to maintaining the fluid balance and the prevention of chest infections. Fundamentally, the strict division of patients between medical and surgical wards is unsound, although administratively convenient. There are many commonly recurring problems which require the co-operative effort of physician and surgeon, and it is much better for these to be organized into functional groups within the hospital than to be rigidly isolated in a medical or surgical ward.

The advent of the N.H.S. assisted rather than hindered the development of staffing of my department. I was appointed to a hospital management committee, which meant giving up one afternoon a week for committees. I personally enjoy the committee work, which gives me a useful perspective into the development and working out of the hospital health service, and I believe medical members can give useful guidance to these committees.

Domiciliary consultations have been an additional commitment, but I have no doubt that they are a valuable contribution to the medical service supplied by the hospital to the local public. The desire for a second opinion is very real with relatives of patients seriously ill, and this enables full-time medical staff to come into much closer contact with their colleagues working in the same district and indeed treating the same patients.

Clinical Research

Working as a chief assistant under Professor Witts and Professor Christie had stimulated an interest in clinical research which has persisted ever since. It is entirely feasible for those working in regional hospitals to graft research activities on to their routine work and to study the many outstanding problems concerning the natural history and treatment of common diseases. Medical research need not be regarded as the prerogative of those working in academic centres. Certainly those working in regional hospitals cannot attempt to tackle fundamental problems which need liaison with other university faculties, but nevertheless there is much useful research work available for them to do. It is important to work forwards and to plan a programme over the next few years rather than to go back on previous records. With the very considerable volume of routine work to be undertaken in regional hospitals, this proleptic approach can be easily arranged. One must admit that additional research commitments encroach on one's free time, but it is important that the clinical facilities available should be fully used.

My own policy has been to study in turn different facets of the natural history of peptic ulcer subjects such as occupational incidence, social class incidence, and heredity, and to try to reduce clinical impressions to firm statistical facts. In addition a very careful study has been made of the treatment of ulcer, particularly in relation to the complications of haemorrhage and perforation.

Having published a number of papers mainly on peptic ulcer, I was fortunate in getting excellent support from the M.R.C. for both lay and medical assistance for my more ambitious research programmes. I would also like to acknowledge the first-class assistance I have had from a succession of overseas postgraduate workers, mainly from Australia.

Advantages and Disadvantages

There are perhaps some disadvantages in full-time hospital practice. The lack of contact with the professional classes as patients would certainly be a serious handicap, but to-day all classes of the public come to hospital. Again, there is less prestige in the eyes of the public in working, for example, in London, N.W.10, rather than in Harley Street, but this does not prevent recognition of one's efforts from within the profession, and a number of full-time physicians, surgeons, and radiologists have received academic distinctions within their Royal Colleges or from learned societies. From my full-time appointment in a regional hospital I was elected to the Fellowship of the Royal College of Physicians and appointed Goulstonian Lecturer. A few years later I was also awarded the William Julius Mickle Fellowship of the University of London. Within the profession the prestige of the full-time hospital worker in the past has been diminished by the feeling that some had entered this field to ensure a sheltered life. Indeed, those who wish to do so can organize a comparatively gentle existence for themselves; but this is not a representative picture, and for those who have special interests to develop there is great scope. Some will exert themselves more than others, but this applies to all walks of life. The chief disadvantage in my view is the inflexibility of full-time hospital work. A private consultant can always limit his appointments by increasing his fees or waiting time, or can help himself by engaging an extra secretary. It is hard for the full-time consultant to convince those in authority that further assistance is needed.

In my opinion, however, there are many advantages in full-time work. The full-time consultant is completely free from financial uncertainty and his time-table is far less rigid than that of those on a sessional basis. He can develop his particular interest in relation to hospital work, or to para-medical work outside the hospital. I personally have always undertaken activities which may help to narrow the gap between the knowledge and the practice of medicine. One must be temperamentally suited to full-time work and must not expect the standard of living which goes with large income-tax allowances. One of the advantages of medicine in the past has been that men of every interest and temperament have been able to find a suitable niche. For those keenly interested in the higher flights of professional independence private consulting practice offers the most satisfaction. For those who wish to devote much time to hospital or research work full-time appointments are particularly suitable.

Additional Contacts

Full-time work does not necessarily mean that one's duties are all performed at one centre. There is much to be said for having one main base and a limited contact with one or two other hospitals. It is advantageous to see how other hospitals function, and in certain specialties it is necessary to draw on a wider field than can be supplied by one regional hospital. Much intellectual stimulus may also be derived from additional contacts, particularly with academic centres. Most of my clinical work is undertaken at the Central Middlesex Hospital, but in addition I act as consultant in gastro-enterology to the Postgraduate Medical School and to St. Mark's Hospital.

For those who have become fairly well established, whether they are in part-time or full-time practice, there comes a time when their programme is completely full and bulges into the lunch-time, evenings, and week-ends. It is unfortunately well known, particularly to chairmen of committees, that only busy people have time to undertake extra duties and additional responsibilities. At this point two steps are necessary. One must cultivate the extraordinarily difficult art of declining pressing invitations which may carry great prestige but which may leave insufficient time for basic routine work. It is also necessary to organize occasional work breaks and to take oneself off routine work for a short time to enable one either to write up past work or to plan ahead. The majority of my own papers have been written while on holiday, but this is fundamentally unsound, and it should be better recognized that those in senior responsible positions need intermittent short periods away from routine work to enable them to maintain their special studies in good perspective.

A Landmark

At the time of the introduction of the N.H.S. Act one was forcibly reminded in the discussions at that time that the conditions of service for full-time staff were essentially dependent on the professional success of their part-time colleagues, which alone saved them from the most mediocre of Treasury scales. Those who advocate universal full-time hospital appointments would do well to remember this elementary fact, and also that it is far better to enable all types to find openings suited to their particular temperaments. It is likely that under the N.H.S. there will be a considerable extension of full-time appointments, not only for auxiliary branches but also for the major specialties.* In his Linacre Lecture, in 1940, Topley recalled the sudden acceleration of the growth of science in the nineteenth century, which was due to a new class of salaried professional scientists. He expressed no doubt that the same stimulus applied to clinical science would produce the same results. Indeed, that it has already done so can be seen from the records of the professorial units and the special M.R.C. centres. I have no doubt that the extension of full-time work in regional hospitals will in due course be regarded as another landmark in the development of the hospital services of this country.

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*In a recent reply to a question in the House of Commons the Minister of Health stated that there were about 1,500 whole-time and about 4,100 part-time consultants working under the National Health Service.

THE PROFESSOR IN THE LABORATORY

BY

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I could not have chosen to be a clinical pathologist, for when I qualified there was no such title. A character in one of Molière's plays found, to his surprise, that he had been writing prose for years; and I must have been a clinical pathologist for ten years before I realized that, for better or worse, such was my profession.

Laboratory medicine has always been the province of two classes of men since first an attempt was made to replace or reinforce the intuitional dogmatism of the pure physician by cold and often unpalatable facts. In my hospital, for example, it was a physician, Dr. Hebb, whose wide reading and foresight led to the institution of a hospital laboratory. I am but third in the hierarchy, and I inherited as chief technician Mr. F. Chopping, who was the first hospital technician appointed.

But medicine owes a great deal to men who, like Pasteur and the great German pathologists, studied the phenomena of disease as a pure science. Both classes still persist, and perhaps always will. The physicians and surgeons who could afford to be ignorant of the scientific basis of their profession have now, at long last, largely disappeared, and no laboratory worker attached to a hospital can to-day pretend, as one famous London figure did in my youth, that the hospital existed to provide him with material. There remain, however, in the laboratory men whose interest brings them for most of the day to the bedside, and others to whom the universe of the microscope and test-tube is sufficiently wide.

My Way to the Laboratory

How, then, did I find my way to a hospital laboratory? The first step came when I was given a microscope as a boy, in an age when biology had taken one of those amazing mutational advances which favours in turn each branch of science, and which to-day has smiled on atomic physics. It has never since occurred to me to stop looking down a microscope. My second instrument was lent to me by Sir Arthur Shipley, Master of Christ's, Cambridge, whom I met by accident at an aerodrome in the 1914–18 war. "You will need it," he said: "war is so very boring." At school, however, I read classics. Cambridge, and Sir Gowland Hopkins, first gave me a glimpse of the delight of asking a question of Nature and watching breathlessly for her reply. I read medicine because I had spent years in the pursuit of destruction and hoped for a constructive occupation. I cannot, however, recall any advice given me by any college official. My tutor and I respected each other's privacy. Sir Gowland Hopkins, it is true, took it for granted that I should work in a laboratory—"But take a year off and write poetry," he cautioned me; "no one should take up research without a background of creative endeavour in another field." I loved Cambridge dearly. No one, I felt, tried to woo me to any creed; but there was a completely universal sincerity to

try to teach how the closest possible approximation to truth may be attained.

I went to my teaching hospital by accident, because it was on my route to Waterloo Station; but there I found John Mellanby, professor of physiology, who for many years guided me in every step and let me loose in his laboratory. I was not much impressed by consultant medicine and surgery. Surgery seemed to me too often a confession of failure, and a technical exercise without statistical background; and I could never bring myself to believe that the most impressive diagnosis, even when enunciated by the most dapper of physicians, was of much value if the evidence in support of it was a bit shaky.

Growth of Clinical Pathology

I met, however, S. C. Dyke, who ran a laboratory for Cuthbert Wallace and Hugh Maclean. This robust trio also ran a civil war with the professor of pathology, who quite understandably resented an insubordinate laboratory service in his hospital. It was Dyke who later founded the Association of Clinical Pathologists. At his feet I first learned that one could be a doctor (I seemed to be committed to that) and still try to keep to facts—and it was Dyke that I followed a year or two later as unit pathologist.

This, however, was a complete accident. On qualifying I applied for a post in Kenya, where I hoped to do tropical medicine. While I waited for an appointment, a locum was needed in Harrison's V.D. laboratory, and I took it. It was another "rogue" laboratory, and again anathema to the professor; but Osmond taught me how to use a pipette and how to recognize a bacillus—and there is no more rigid laboratory discipline than the Wassermann test.

Soon Dyke left, and again I sat in for a while. But I never left for Africa—at least not for another twenty years. Cuthbert Wallace was a grand chief, but as the laboratory was excommunicated, or perhaps convicted of Titoism, I got little instruction in pathology from the professor. Mellanby, however, took his place, so far as I was concerned, very happily. I am quite sure that no medical student and no pathological laboratory can afford to be without daily contact with a physiologist.

The rest was inevitable. Whether or not there is always room on the top, it is only the bottom rung of the ladder that needs finding. And there isn't such a crowd there as one might think. But then my ladder had no label. Pathologists in those days were very badly paid; I kept myself mainly by journalism, and my wife, whom I married young, also had a salaried job. But I do not think that any part of my career was determined by financial considerations. I had plenty to live on—indeed, lived far better in those days than now.

Our status among our clinical colleagues was poor. We had no votes on committees, and often enough met with arrogance and even, at times, with discourtesy; and we reciprocated. As the only salaried hospital doctors we ranked as professionals; and these were days when socially the size of cars was more important than intellectual calibre. To-day clinical pathologists are equal in pay and status with those in every other branch of the profession. Most of the important advances in medicine have come from the laboratory; the clinical pathologist has of course done less to advance medicine than the physiologist and the pure research worker, but he has the joy of introducing and testing out each new discovery.

Present Conditions

A new spirit reigns in medicine to-day; the services of the clinical pathologist are sought, not resented; in the best hospitals the best physicians and surgeons are most often in the laboratory, and many of the most distinguished men have spent a year or more there. It is an expanding service, and for some years to come there should be room for the right kind of recruit.

My great fear is that the new status of the clinical pathologist may attract the wrong kind of man; at least the poor financial rewards of clinical pathology in the past ensured that those who took it up were not fortune-hunters. It is to be hoped, also, that the shortage of clinical pathologists, caused in part by the poor salaries, may not lead to the appointment of inferior candidates.

Finally, laboratory-minded men and women should realize that clinical pathology combines with the direct service to sick humanity the delights of an exact science and the infinite variety of all biological learning. There is, and I hope always will be, time, staff, and equipment enough for those who wish to initiate new knowledge.

Pure research is a hard and thankless master; many a good heart has been broken in its service. But the modern student should not forget that clinical pathology is not the only laboratory biological science; he should try to find out what the pharmacologist, the physiologist, the pure bacteriologist, and the biochemist are doing, and where they are doing it. A planned career, it is true, is a dull affair; opportunism is the spice of life. Still, one might perhaps spend a day or two finding out how many delightful ways there are of earning one's keep in a laboratory.

In the clinical laboratory the pathologist is part of a great unit, sharing detailed interests, sharing too in the prolongation of useful life and the alleviation of unnecessary pain, while pursuing as his major interest branches of biology as fascinating as any, and so varied that any one of them may, if he so chooses, absorb all his interests. But he must, perforce, curb his imagination, and stick closely to the application of established methods rather than to new improvisations. For many these restraints may be galling; and for them pure science, which serves posterity and humanity rather than the present and the unit, will be the happier adventure.

News about medical standards in Russia was given in London recently by two doctors who have just returned from a visit to the U.S.S.R. The chairman of the delegation from the Society for Cultural Relations with the U.S.S.R., Dr. Horace Joules, said that he had been much impressed by the treatment given in the polyclinics and by the importance attached to preventive medicine. Doctors have to spend eight hours a month teaching preventive medicine to the public or to their patients in hospital. Russian doctors had been convinced by the evidence provided by British and American doctors that smoking increases the incidence of carcinoma of the lung (see *British Medical Journal*, 1950, 2, 739 and 767), and without doing any research of their own into this problem they began to publicize this fact a year ago, and it is estimated that the consumption of tobacco has already fallen by 10%. An intense drive is being made to eradicate tuberculosis, and all children are vaccinated with B.C.G.; miners and industrial workers have chest radiographs taken frequently. Private medical practice does still exist in Russia, but the number of doctors working outside the polyclinics is decreasing. There is no shortage of doctors, and Dr. I. C. Gilliland said that the doctors waited for the patients rather than the other way round.

INDUSTRIAL MEDICINE

BY

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Just about twenty years ago I saw on the "appointments" notice-board at my medical school an advertisement for a whole-time medical officer in a world-famous industrial organization. My first reaction was one of cynical wonder. Why did a factory, even a large one, want a doctor? What doctor worth his salt could waste years of training and experience working in a healthy community? The treatment of sick and injured employees was surely a matter for general practitioners and hospitals. So I dismissed the matter from my mind, for I had other plans for the future.

It so happened, however, that just about that time I was beginning to have doubts about making an immediate living as a consulting physician. My feet may have been on the bottom rung of the ladder, but the top was far away, and in the city where I lived and worked prospects of promotion tended to be obscure. And as the doubt developed I began to think more and more about the advertisement, for the firm really was famous. Even I knew that. And the terms and conditions seemed fair. Here might be the security that perhaps I hankered after. Arguing that no harm could be done by finding out more about things, I sent in a formal application, and to cut a long story short I was offered the job and accepted it.

Thus almost by chance, and certainly without any previous knowledge of industry, I entered a strange field of medical practice in which at that time only a handful of men were engaged. Fortunately, my particular postgraduate work was now to serve me well. In addition to clinical responsibility I had had some small experience (for I had had to earn a living) in teaching, in research and the discipline of the laboratory, in drafting reports for my chiefs and in departmental organization. The new environment now demanded clinical opinion, more often than not in the written form. Teaching experience enabled one to marshal facts, to state them simply and clearly perhaps, and to stand up to cross-examination from employer and worker across the conference table. Some knowledge of scientific literature made it not too difficult to find sources of information. And a slight experience in the literary field promoted confidence in the preparation of memoranda, unfortunately an essential commitment of any responsible post in well-organized industry.

Early Influences

At my university and hospital I had no guidance in my choice, although I sought it, for to my teachers and colleagues as well as to myself industry and its opportunities for medical men were a closed book. Little emphasis had been laid during my training on the effect of occupation even on sick people; and to my certain knowledge the effect of work itself as a therapeutic agent had seldom been brought to my notice, except in one respect which played an important part in my decision. I had the good fortune during 1927 and 1928 to act as junior assistant to Sir Robert Philip, then Professor of Tuberculosis in Edinburgh University. His patients at a near-by sanatorium were given routine outdoor work of varying kinds at an early stage in their out-of-bed treatment. As resident medical officer I had to make an assessment of their tolerance for effort. For what duration of time, for instance, could a man with an early apical lesion be expected to dig in the gardens, or what weights could he carry and for what distance? It was my responsibility also to progress them (as best I could) through different grades of work in step with their clinical recovery. The implications of this part of Sir Robert Philip's pioneer work had not occurred to me before, but now it became the basis of a dim belief that occupation and medicine were interrelated and could somehow or other be linked together in even a stronger fashion.

Fitness for Work

One of my first tasks in industrial medicine was to carry out a physical examination of all new entrants to the factory. The firm's aim was to enlist fit workers only and not those likely to break down through ill-health. Rejections on medical grounds therefore were nearly 10% in my first year. But some doubts about my clinical stock-in-trade soon arose, for I found that satisfactory performance on the job, often for many years, was compatible with well-developed organic disease. Frequently I had to see men coming back to work after accidents in the factory, with a view to advising the management about their employment. In the course of examination men were found with cardiac disease, for example, or with well-marked disease of the central nervous system. For ten or twenty years previously they had worked well and efficiently in what were undoubtedly heavy or exacting occupations without absence for health reasons until their injury occurred.

And so my rejection rate decreased; more and more men were given the benefit of the doubt and started work with chronic bronchitis, albuminuria, varicose veins, and rheumatic carditis. I wrote to their doctors where curative treatment was necessary and followed them up, for I had time to do it and (for the first time in my life) adequate secretarial help. Disablement, even of a severe nature, was now in my view no bar to employment—provided one knew something of the demands of the job concerned. This was my first lesson in industrial medicine, learned through personal experience, for at that time it was not mentioned in textbooks or included in any teaching curriculum. Even with all his knowledge of morbid states, of disease syndromes, and of modern treatment, what doctor, I argued, dared deny a man the opportunity of reasonable employment on evidence other than that of reduced occupational capacity?

Rehabilitation

To-day things are different. The story of rehabilitation, first so well told by orthopaedic surgeons and made public in the Delevingne report[1] in 1939, altered the picture. Work was a necessary part of the treatment of fractures and other injuries. And what was good for accident cases surely was good, in principle, for cases recovering from illness. On this basis came the Tomlinson report[2] in 1943, followed by the Disabled Persons (Employment) Act of 1944, so that official recognition on a large-scale basis was now given to the problem of the handicapped individual and to the need for creating still further employment opportunities for him. The study of work and its demands became increasingly important to the doctor in industry. He had the

additional responsibility of seeing that men and women with frank disablement, who had to be employed,* were given work within their capacity.

There has been considerable progress in this field of matching worker and job. We are now at the stage of developing techniques of providing occupational information for doctors through job analysis and job evaluation which may end much of the indecision we have shown as a profession in advising on employment problems. The practice of medicine is entering into a phase of industrial usefulness which may supplement the clinical field both in the factory and in the hospital.

Occupational Disease

Occupational disease as a formidable issue has seldom come my way, though for many years I have worked in many different communities, large and small. Curiously enough I have often regretted the fact. A tangible problem, clinically defined, can open a specific field of study which if handled efficiently shows positive results which can be put on the credit side more readily than many other ventures in industrial health. The control of serious hazards is well managed by many industrial medical officers. Wisely they seek collaboration from chemists, physicists, and engineers; and in this respect we owe much to the example of our American colleagues. The informed industrial physician meeting a specific toxic risk now seeks assistance from specially experienced research workers, for within the last five to ten years high-level help has become available through the special machinery of the Medical Research Council.

Technical Solitude

I remember the feeling of isolation that soon developed when I entered industry. I was surrounded, no doubt, by many more people than before, my outlook widened, and my general education progressed rapidly. But I missed the sense of belonging to a medical school where at a moment's notice I could go to my seniors for help and advice on clinical matters. This was ultimately resolved, for, with permission, I became clinical assistant at a local hospital and in time made friendly contacts with a new group of doctors in a new city.

But most of all I missed the help and advice and criticism of men doing my own job. Surely other doctors in industry had much to tell me. This was soon overcome, however, when I found, among others, E. R. A. Merewether in Birmingham, A. J. Amor in Swansea, R. E. Lane in Manchester, and L. P. Lockhart in Nottingham. It was interesting, too, to know then that I was not alone in my feeling of technical solitude, and so, in 1935, came the natural birth of the Association of Industrial Medical Officers. But not until 1944 were we ready as a group of specialists to satisfy the profession as a whole that there was a need and a demand for our own scientific journal. In that year, through the far-sightedness of the British Medical Association, was published the first number of the *British Journal of Industrial Medicine*, which compares favourably with any other of its kind in the world.

To-day the importance of health in industry is as great as ever. We have progressed in terms of time and experience to think of worker-groups, of group health, of the importance of the impact of the individual on the group, and of group morale. But the occupational demands of the individual man in the factory or the shipyard, or the woman in the office, in terms of physical and mental health, are equally great. There is in industry a deep need for good young clinicians, socially minded, and with ideas about the future of medicine wider than those imposed on me and my generation by the boundaries of disease entities. Financially the right man should have few regrets in taking up this work as a full-time career. With suitable qualifications and experience, and in time, there is good reason to believe that he will be accorded the status and remuneration of his contemporaries in the consultant field.

Advice to New Entrants

General practitioners can benefit not only by working as part-time industrial medical officers but, as the second Cohen report[3] points out, in finding that "a knowledge of a man's occupational background with its wide implications cannot do other than improve a doctor's efficiency in general practice." If you wish to become a good general practitioner my advice is not to take on too many outside jobs. A man with a full list cannot adequately work within industry, except in rare circumstances. If you can, try to find one appointment, and cherish it. Industrial health can be only a minor part of your professional life; let it stay as such.

For the man who wishes to specialize in industrial health (and, in spite of many views to the contrary, I contend that industrial health *is* a special branch of medicine) there are frequent openings in factories, mines, and other occupational groups, in research, and in Government service. For such men educational facilities are unfortunately few, but they are available in the London School of Hygiene, for example, and at Manchester University. For what it is worth, my advice, if you wish to enter industry, is not to demand security too early in life. Experience is there to be gained, in humble and junior jobs, and I would seriously suggest that success will come more effectively if you do start at the bottom. You qualify at, say, 25 or 26; you do your house jobs; you do your time of National Service—and here, incidentally, you gain vital knowledge of an important occupational community. Perhaps you do some general practice: I strongly advise it. By then you are nearing 30. If you want to succeed in industrial health a higher qualification is, in my view, essential. Thus you will demonstrate to yourself the clear value of a continuing discipline, and you will stand well with your colleagues in other specialties. Then come to us in industry, for we want you.

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*Under the Act employers of 20 persons and upwards are required to have 3% of their workers on the Ministry of Labour's register of disabled persons.

The first group of 36 tuberculosis patients from Scotland left Prestwick Airport on June 15 for Switzerland under the National Health Service scheme providing treatment abroad. The Under-Secretary of State for Scotland saw them off. There were 18 men and 18 women, aged from 18 to 39, and they went by air to Geneva, completing the journey to Mont Blanc Sanatorium, Leysin, by rail.

LIFE IN THE COLONIAL SERVICE

BY

A COLONIAL MEDICAL OFFICER

To make the decision to live a life that promises to be so different from what one is accustomed to is not easy—it is rather like taking a plunge into cold water—but it is seldom regretted when once the initial break has been made.

It is a pity that more is not done to bring before a medical student the advantages of service abroad. In my student days I had scarcely heard of the Colonial Medical Service. It was not mentioned officially as a possible future career either at the university or at the hospital where I received my clinical instruction. After holding several house appointments I sailed to Australia as a ship surgeon. Then after some months of hospital work in Sydney I got a job on a ship which plied its trade among the Solomon Islands, picking up copra. We stopped at about forty little ports, including Rabaul in New Guinea. The experience of cruising among these lovely isles—down the Buka passage, with the Malaysian natives diving for fish among the sharks—and later of exploring the Great Barrier Reef and the forests of Queensland, first fired my imagination and made me want to live in some such place instead of being tied to a conventional English town.

I decided to study tropical medicine, as I was determined to go abroad again. At first my intention was to join the Royal Navy, but at the London School of Hygiene and Tropical Medicine I had my introduction to the Colonial Medical Service by meeting officers who were newly appointed; also many of the teaching staff had served abroad. It was a privilege to hear some of these men. For the first time medicine assumed a definite guise. One read about the disease and saw the causative organism under the microscope. Frequently the infection—or deficiency—could be rapidly cured by the appropriate drug, and one could see this happen in the Hospital for Tropical Diseases near by. It was so different from the waiting on *vis medicatrix naturae* that seemed so often to be the lot of the G.P. in England when he was not occupied with the rites of birth and death. The scope of the medical officer was shown to be wider even than imagination had conceived.

Wide Range of Activities

As the only doctor in a small station one is faced with the opportunity of major surgery without responsibility except to one's own conscience, with the interest of diagnosing and treating the diseases described in the textbooks without the obligation of passing the patients on to a specialist, and with the fascination of laboratory work limited only by the shortness of the day. To those academically inclined, and who trouble to get some command of the vernacular, comes the opportunity to teach—and how enthusiastic are the taught—and to carry out pieces of research. Public health has an attraction all its own. There are the nutritional and psychological problems which beset backward people who are being too suddenly urbanized and who need one's patient understanding. To have the task of supplying the "steam" and "oil" to an administrative machine such as the health department of a municipality is an experience most satisfying, and restricted only by physical boundaries. The young health officer will soon find that the life of a child with diphtheria can be saved as much by proper disposal of the patient as by doing a tracheotomy.

To some of us wider horizons are more attractive. There are the patients with epidemic diseases who literally have to be chased over the countryside. Cerebrospinal meningitis, smallpox, bacillary dysentery, bubonic plague, and sleeping sickness are all within my personal experience. I remember well the organization which led to the control of a big epidemic of cerebrospinal meningitis involving many thousands of persons; how the little grass hospitals sprang up like mushrooms, the patients struggling to the threshold with their heads held stiffly back, and the wayfarers lifting their hands and murmuring the magic word "Emanbee." Such circumstances illustrate the district team work which is a feature of many Colonies. The district commissioner, and experts in medicine, agriculture, veterinary science, and so forth, co-operate to promote the welfare of the native. I recall visiting a village where the inhabitants were dying of dysentery, and the cold glance given me by the local witch doctor as he passed by on his rounds, his head adorned with the horns of a buck and his belt festooned with the instruments of his art.

The most precious hour on such safaris is the golden hour at sunset—the hour when it is cool enough to wander, the hour when the duck are coming in. In England you seek the sun; in the Tropics we usually avoid it. But the moon has a special significance. In England most people disregard it; in the Tropics it is the time-table of our journeying, and its fullness reveals the lion and leopard, and brings gaiety to the village dances. It is in such leisure hours that the man with a hobby has an advantage over both the man whose life is absorbed in his work to the exclusion of other interests and the man for whom company is essential to happiness.

Outside Interests

There is something to suit every taste—the archaeology of the Middle East, the culture of the Far East, and the natural history of the American and African continents: the geographical world has been almost completely discovered and explored, but an enormous realm in the world of biology awaits the inquiring mind. The traveller who once stated that abroad the birds do not sing nor the flowers smell could never have enjoyed the flute-like notes of the shrike *Nicator*, which rival those of the English nightingale, or experienced the sweet scent of jasmine; and there is a galaxy of butterflies and moths waiting to delight the collector's heart.

One must not gloss over the fact that there are certain disadvantages inherent in the Colonial Medical Service. These are, or were, mainly important for the family man. In the old days frequent separation from wife or children or both was an undoubted hardship, but in the last few years the long distances have almost been obliterated. Aeroplanes filled with children fly out to many parts of the Commonwealth for the summer holidays, and even the most distant island is only about three days' journey away from London. In some Colonies there are excellent schools, both primary and secondary. Although the latter may not give so much to youth as the traditional public schools of the old country, they provide an excellent opportunity to the sons and

daughters of the more privileged to hand on to natives of all races the best traditions of the British way of life.

Life After Retirement

Towards the end of his career other prospects appear to the medical officer. He may have promotion, with its advantages and disadvantages. In addition, or instead of this, he may consider settling permanently in a Colony, for, although in the past it has been customary for the British official to be a bird of passage with an eye on a home in England for which he saves all he can, more recently Britons, like the Dutch, have been considering the advantages of driving a permanent stake in the land of their adoption. To many who remember the England of the period before the first world war the restrictions of nowadays are irksome, and permanent homes can be made in the healthier Colonies, in which one's link with Britain is maintained by the many and fast-developing air lines. Moreover, in such circumstances it is possible to continue to aid the backward peoples, which has been one's life work.

The man with a pension has no need to take all that he can from the land. The residential settler with an official's experience and no more than 50 acres to play with is the best type of settler. He can take a part in local government, or he can develop a kind of manorial system in which he meets the people on the common ground of service to the land, without obsequience on the one side or patronage on the other, and enjoy both the growth of his civilizing influence and the comfort of a well-served old age.

Medical Memoranda

Thrombocytopenic Purpura in Infective Hepatitis

Haemorrhagic manifestations during the course of hepatic disease are generally regarded as of serious prognostic import. Such instances are usually due to hypoprothrombinaemia and indicate considerable parenchymal disturbance, as in acute hepatic necrosis and leptospirochaetosis. Purpuric haemorrhages may, however, occur in comparatively mild hepatic diseases in association with increased capillary fragility with or without thrombocytopenia. This form of purpura depends on tissue susceptibility and is not related to the intensity of the primary infection, and therefore does not of itself indicate a grave prognosis.

Case Report

The patient, a housewife aged 30, was sent into hospital as an emergency case by her doctor. He was perturbed about the association of jaundice and cutaneous petechiae. Vague upper abdominal pain had been present for a week before admission, and for the previous 48 hours she had vomited frequently, the vomit containing streaks of blood. Jaundice of the skin, anorexia, and malaise had been present for four days, and the patient had noticed petechiae over the trunk the day after the appearance of the jaundice. She gave no history of bruising or of haemorrhage before the onset of her illness.

Her regular menstrual period had begun a week previously and had persisted with menorrhagia, the duration and severity of the bleeding being quite unusual for her. She gave no history of limb pain or of dysuria, and she had received no recent transfusions or any parenteral injections. There was no history of indigestion or of contact with hepatic toxins of any kind.

On admission she was obviously jaundiced, and petechial haemorrhages were present over the trunk, limbs, and palate, with a few ecchymoses on her right shin. No abnormalities could be detected in her heart, chest, or central nervous system. The liver edge was just palpable and not tender. The spleen could not be felt. Her temperature was normal, but her pulse rate persistently slow. The urine was highly coloured and contained bilirubin, with urobilinogen and urobilin, and a moderate number of red blood cells. The capillary fragility test of Hess was positive. A blood count showed: red cells, 4,500,000; haemoglobin, 88%; white cells, 3,800, with a normal differential count; van den Bergh, direct positive (immediate); serum bilirubin, 7 mg. per 100 ml.; alkaline phosphatase, 33.1 units (King–Armstrong); thymol turbidity, + 4 units; total platelet count, 13,000 per c.mm. (Lempert Kristenson method—average normal variation, 170,000–320,000). Agglutination for *Leptospira icterohaemorrhagiae* and *L. canicola* was negative in all dilutions (Dr. J. C. Broome). Her blood group was B Rh-positive. The bleeding time was 24 minutes, and blood culture was sterile.

A diagnosis of infective hepatitis (I.H. virus), complicated by purpura haemorrhagica, was made. Treatment consisted of complete rest with a high-carbohydrate diet. On the following day she was given a pint (570 ml.) of compatible blood, and a large painful ecchymosis developed at the site of transfusion. Water-soluble vitamin K was given by injection daily (10 mg.).

Four days after admission the jaundice had noticeably improved and the purpura was less marked. Blood examination showed: haemoglobin, 84%; red cells, 4,000,000; white cells, 4,800 per c.mm.; serum bilirubin, 2.6 mg. per 100 ml.; platelet count, 22,000; thymol turbidity, + 4; colloidal gold, + 3; Takata–Ara, +++. There was no evidence of circulating haemolysin. Blood culture was negative. Ten days after admission the patient was symptom-free, only slight conjunctival icterus being present, and the purpura had cleared. At no time was the spleen palpable. The platelet count then was 125,000, the capillary fragility tests were negative, and the bleeding time was two minutes. *X*-ray films of the chest were normal.

The jaundice had disappeared by the 17th day. Liver-function tests: thymol turbidity, 2 units; colloidal gold, + 2; Takata–Ara, +; Paul–Bunnell test negative. Sternal puncture showed a normal bone marrow with scanty megakaryocytes, which appeared normal. Platelets numbered 207,000, with a normal blood count. Urine analysis was normal. The patient was discharged from hospital on the following day, and when seen three weeks later she was quite well, the blood count being: haemoglobin, 96%; red cells, 4,720,000; white cells, 5,900.

Comment

It has been widely held that purpura occurs only in severe infections, but several recent papers have established that this is incorrect. Ackroyd (1949) describes three cases of thrombocytopenic purpura complicating mild attacks of rubella, and Mills (1950) reports thrombocytopenic purpura occurring during an ordinary attack of measles, with full recovery. Furthermore, thrombocytopenia is often associated with diffuse hepatic disease. Snell, Vanzant, and Judd (1930) described haemorrhagic phenomena with thrombocytopenia occurring in obstructive biliary cirrhosis. Whitesell and Snell (1949) describe 29 cases of extrahepatic biliary obstruction, only four of which had thrombocytopenia, and 41 cases of hepatitis or cirrhosis, 37 of which had thrombocytopenia with increased capillary fragility or both. In their opinion a

complete assessment of liver function should be made in all cases of idiopathic thrombocytopenic purpura before splenectomy is advised. In Traisman, Wheeler, and Fager's (1950) three cases of virus hepatitis in infancy one child had a platelet count of 30,000.

The occurrence of purpura haemorrhagica in the above case of infective hepatitis may therefore have involved two precipitating factors—a virus infection and liver disease. It is likely, as Ackroyd states in his review of thrombocytopenia in acute infections, that fundamentally the haemorrhages are due to tissue sensitivity, and it was shown in this patient that the thrombocytopenia and the increased capillary fragility were more in evidence in the initial stages of the infection. It is suggested that when a haemorrhagic tendency is present in a virus hepatitis the presence of thrombocytopenia and increased capillary fragility improves the otherwise serious prognosis, provided, of course, that haemorrhage into a vital organ, such as occurred in one of Ackroyd's (1949) cases, does not arise.

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Trichomonas Vaginalis Infections Treated with "Penotrane"

Trichomonas vaginalis is one of the commonest causes of non-venereal vaginal discharge, and is a chronic problem to those treating such cases. Certain of the remedies already available seem to suit some patients and some suit others.

The bactericidal and mycoticidal properties of phenylmercuric salts are well known, phenylmercuric nitrate having been introduced clinically by Levine in 1933. Goldberg *et al.* (1950a) demonstrated that combination with dinaphthylmethane disulphonic acid enhanced the bacteriostatic properties of the phenylmercuric ion. Furthermore, the crystalloid phenylmercuric salts possess little or no capacity to penetrate the tissues, whereas it has been shown (Goldberg *et al.*, 1950b) that the colloidal phenylmercuric dinaphthylmethane disulphonate ("penotrane") passes through the living skin and enters deeply into the subdermal connective tissue, whilst its toxicity is of the order of that of colloidal silver.

These properties suggested the trial of penotrane in the treatment of trichomonal vaginitis, for which purpose we used a 0.1% aqueous solution and pessaries containing 0.2%. The pessaries were specially made up in a base consisting of solid water-soluble polymers of ethylene glycol, similar to those employed by Siegler (1946) for the preparation of a sulphonamide ointment used for the treatment of vaginitis.

We treated 30 cases of vaginal discharge in which *Trichomonas vaginalis* was found on microscopical examination. Sixteen of these cases had been previously treated, principally with an arsenical vaginal compound, and had either relapsed or had reacted and responded unsatisfactorily. The treatment given consisted in painting the vagina with the aqueous solution of penotrane and inserting a penotrane pessary. Where possible the patient had paintings daily with insertion of a pessary, and where that was impracticable either painting once a week followed by the insertion of a pessary by the patient each night, or just the insertion of pessaries. There was a marked tendency to relapse after menstruation, but if the pessaries were used during the period this tendency was obviated. The insertion of pessaries every night for two weeks cleared the condition clinically and pathologically, but relapse occurred if the treatment was not continued. By continuing to use the pessaries on alternate nights and then gradually increasing the interval the patients were found to have no further symptoms. The average length of treatment was twelve weeks.

In nine cases the condition cleared, and at the time of writing no relapse has occurred, the first patients having been under observation for nine months. In 10 cases the condition cleared at first, but was followed by clinical or pathological relapse, usually after a menstrual period or a short lapse in treatment. Four cases improved, but their attendance has been so irregular that no definite conclusions can be drawn. One case showed improvement, but developed a cervical erosion after becoming negative to *Trichomonas vaginalis*, and treatment had to be changed. In three cases there was no improvement. Three patients did not return or were transferred after having shown improvement, but treatment was not completed.

In conclusion, it seems that penotrane has a place in the treatment of *Trichomonas vaginalis* infections, but at present relapses tend to occur, particularly after menstruation or if treatment is interrupted even for a short time. It is recognized, however, that relapses or recurrences, often due to reinfection, are frequently observed with other tried remedies, and penotrane appears to suit some patients who have not responded to other treatments.

Our thanks are due to Dr. M. M. Shaw for permission to carry out these trials on the patients of the Marlborough Clinic, and to Messrs. Ward, Blenkinsop and Co. Ltd. for the supplies of penotrane.

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The *Journal of the American Medical Association* (July 28, p. 1231) reports a case of a negro woman suffering from mumps who gave birth to a child who was not infected. Mumps virus was isolated from the milk of the mother, and passed five times through eggs; this strain was used to induce mumps in two lactating monkeys. Neither of the infant monkeys showed any serum antibodies or signs of illness. The author suggests that either the virus failed to pass the placental barrier or the infant was insufficiently developed to have produced a detectable antibody response.

Reviews

PRIMARY LIVER CANCER

Primary Carcinoma of the Liver. A Study in Incidence, Clinical Manifestations, Pathology and Aetiology. By Charles Berman, M.D., B.Ch.Rand. With foreword by Sir Ernest Kennaway, M.D.Oxon., D.Sc.London, F.R.S., F.R.C.P. Introduction by Henry Gluckman, M.R.C.S., L.R.C.P. (Pp. 164; 83 illustrations. 35s.) London: H. K. Lewis. 1951.

Primary liver cancer is particularly common among the native workers in South African mines. Between 1925 and 1933 there were 253 cases of carcinoma in the Native Mine Hospitals of the Witwatersrand; of these, 229 (90.5%) were primary liver cancers. These miners are young adult males, the group among whom these carcinomas are usually found, so that the figure is unusually high, but among the Bantu races of Africa as a whole the incidence is 50.9%. A similar figure is found in the post-mortem statistics relating to certain Oriental races; among male Javanese, liver tumours comprise 79.3% of all cancers, among Chinese 33%, among Filipinos 22.2%, and among Indians 17.5%.

Dr. Charles Berman, as senior medical officer of the Consolidated Main Reef Mines estate, has an unusual, perhaps a unique, experience of primary liver cancer in the Bantu, and bases his monograph on a study of 75 personal cases as well as on an analysis of the literature. That race alone is not the determining factor is shown by the fact that primary liver cancer is six times more frequent among the Bantu from Portuguese East Africa than among the South African Bantu, and that the incidence among American negroes, though higher than in Europeans, is very low by comparison with Africans and Orientals. That malnutrition is not the sole factor is shown by the great preponderance of men over women.

Dr. Berman's study is the most important contribution that has appeared on this difficult and important subject. He describes the clinical course and the gross and histological pathology in detail, and enters fully into the views that have been advanced on the possible explanations of the remarkable racial incidence of these tumours. He considers that environmental rather than genetic factors are responsible. Cirrhosis of the liver in most cases appears to be a precursor of malignant change, but the relative importance in the production of the cirrhosis of protein deficiency, parasitic infestation, syphilis, alcohol, highly spiced foods, and the notorious tendency to keloid formation among the Africans and Chinese cannot be assessed with any accuracy.

The book is excellently produced and amply illustrated by photographs of patients, specimens, and microscopical sections.

HENEAGE OGILVIE.

CHILD GUIDANCE

Handbook of Child Guidance. Edited by Ernest Harms. College edition. (Pp. 751. $6.) New York City: Child Care Publications (30, West 58th Street). 1950.

In Britain the organization of child guidance clinics and the methods of investigation and treatment vary in different areas. But the basic outline of a team consisting of a psychiatrist, psychologist, and social worker can be traced back to the pioneer clinic of William Healey, which was opened in Chicago in 1909. For this reason, and because of the rapid progress made in the United States since the Commonwealth Fund entered this field in 1921, there is a great deal to be learned from the experience of American workers. An advantage of our own tardy development is that we can profit from their trials and their errors when planning new clinics of our own.

Dr. Harms accepts the thesis that child guidance should be the work of a team and that the prevention of maladjustment by attention to the emotional, physical, and cultural needs of the child should be the task of its educational members. Beyond this, if his choice of contributors is any guide, he has a very open mind, and the book provides a thorough survey of the educational, social, psychological, and medical aspects of the subject. That there are wide differences of emphasis and some conflicting views merely indicates that the picture of the American child guidance scene is a true one. Certainly no one who is concerned with the planning of clinics should be without this comprehensive book, which in spite of its forty contributors shows an excellent continuity of theme.

Although one expects each generation to deplore the immaturity and cultural deficiencies of the next, it is doubtful if many here would agree with the *amount* of guiding which is recommended. The impression is gained that the child who is being subjected to "leisure training" has little time to scratch for a few unplanned crumbs of culture on his own. Of special interest at the moment are the chapters on the training of personnel, and here Dr. Leo Kanner, with characteristic moderation and common sense, steers a course to which no paediatrician could object. Other contributors of ripe experience are Bernard Glueck, Ira S. Wile, and Alexandra Adler. The theories of the psychological schools are left to the end, when the Freudian, Adlerian, and Jungian points of view are given. The exposition of each is fair enough, and the general medical reader will be able to decide for himself which is most likely to endure.

ALEXANDER KENNEDY.

THE CAROTENOIDS

Carotenoids. By Paul Karrer and Ernst Jucker. Translated and revised by E. A. Braude. (Pp. 384; illustrated. £3 5s.) New York: Elsevier Publishing Company Inc. London: Cleaver-Hume Press. 1950.

To the biochemist and nutritionist the carotenoid pigments are of importance because a number of them act as provitamin A in the mammalian and animal body. To organic and physical chemists they pose innumerable questions about spatial configuration and about the relation of chemical structure to such properties as specific light absorption and chromatographic behaviour. To the biologist they present fascinating problems in biogenesis and taxonomy. The large number and wide prevalence of these pigments is not always appreciated: the authors have presented in twenty-one pages a complete list of animals and plants, cryptogams as well as phanerogams (blossoms, fruits, and seeds), in which carotenoids have been detected; many of the best-known natural orders appear to be represented. They have covered bacteria, diatoms, flagellates, and algae. Nine of the twenty-one pages list the animal sources of carotenoids. They range from molluscs and echinoderms through worms and sponges to chordata and vertebrates, among them mammals, birds, and fish. To the medical reader the first nine chapters of this book, constituting the General Part, may well prove a minor revelation

about a group of natural compounds that he must generally have been content to "take as red."

The Special Part of the book contains nearly three-quarters of the text in five further chapters and records in detail the history, occurrence, preparation, and chemistry of each carotenoid whenever the information is available. The text is amply provided with structural formulae. Coloured plates show the crystalline form of twelve of the commonest carotenoids; there are 27 figures illustrating the light-absorption curves of these and some others.

The production of this book is of a high standard. Very few printers' errors have been detected—a creditable achievement, for it was printed abroad. A useful and unusual feature is the indication at the foot of each page of the place where the references to its chapter are given. The references to each chapter are, wisely, given separately at its conclusion. There is a useful index of vegetable and animal sources of the carotenoids, as well as the usual subject index.

A word may be said in conclusion about the translation. In general it is adequate and even satisfying, as far as one can tell by reading it without direct reference to the German original. But the translator appears unfortunately to be wedded to many of the inelegances characteristic of so much chemical writing. From pages 5 to 26 alone he has used "regarding," "with regard to," or "concerning" at least nine times (three on one page), when in every instance "about" would have served much better. He has gained no advantage by use of "in the case of" instead of "with," and he uses the obsolete "petroleum ether" instead of "light petroleum." For the stylistic blemishes in this book one would prescribe for him and for all too many other scientific writers an intensive course of Sir Ernest Gowers's *Plain Words*.

This is, perhaps, ungracious criticism, and in any event is not to be taken as limiting one's gratitude to Dr. Braude for undertaking an intensely arduous task and for making available to those who cannot cope with the original German what is and must for many years remain a book not only indispensable to all workers in certain fields of organic chemistry and biochemistry, but authoritative as a source of answer to every question that can be asked about the carotenoid pigments.

A. L. BACHARACH.

CITY LIFE

The Daytime Population of the Central Business District of Chicago. With Particular Reference to the Factor of Transportation. By Gerald William Breese. (Pp. 267; illustrated. $6.00.) Chicago, Illinois: University of Chicago Press. 1950.

The central business district of Chicago comprises a well-defined area of rather less than 1 square mile. In 1940 it had a resident population of 6,221 persons, yet between the hours of 7 a.m. and 7 p.m. on a typical week-day in May about 800,000 to 1,000,000 people entered the area. This report, one of many sociological studies from the University of Chicago, describes the pattern of this mass daily migration, particularly in relation to transport.

The district serves a metropolitan area with a population of about 4,500,000 as a business, government, cultural, and recreational centre. In this respect it combines the activities of the City and West End of London. As would be expected in an American city, a high proportion of those entering the district—about a quarter—use private cars as their means of transport. Despite this the convergence of so many people into a small area provides many opportunities for close person-to-person contact, and this must in turn influence the spread of common infectious diseases, particularly those of the respiratory system. It is the antithesis of the situation in which Dr. Pickles has so clearly traced epidemic patterns in his scattered Wensleydale villages, and is a challenge in that the appropriate epidemiological techniques for large urban communities are as yet little developed.

J. KNOWELDEN.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

The History of Science: Broadcast Talks. (Pp. 184. 8s. 6d.) London: Cohen and West. 1951.

Chiropody Instruments: Their Use and Maintenance. By C. E. Kemp, F.Ch.S. (Pp. 59. 3s. 6d.) London: Actinic Press. 1951.

Corns and Callosities in the Fourth Cleft. By H. Trill, F.Ch.S. (Pp. 59. 3s. 6d.) London: Actinic Press. 1951.

Handbook of Pediatric Medical Emergencies. By A. G. DeSanctis, M.D., and C. Varga, M.D. (Pp. 284. 35s.) London: Henry Kimpton. 1951.

The British Encyclopaedia of Medical Practice. Edited by Lord Horder, G.C.V.O., M.D., F.R.C.P. 2nd ed. Vol. 5: Ecthyma to Gassing and Poison Cases. (Pp. 680. 60s. per vol.) London: Butterworth. 1951.

Growth and Development of Children. By E. H. Watson, M.D., and G. H. Lowrey, M.D. (Pp. 260. $5.75.) Chicago: The Year Book Publishers. 1951.

Electroencéphalographie et Electrocorticographie de l'Epilepsie. By various authors. (Pp. 136. 1,600 francs.) Paris: L'Expansion Scientifique Française. 1951.

Über den Zwangsneurotischen Symptomenkomplex. By K. K. Kaila. (Pp. 227. No price.) Copenhagen: Ejnar Munksgaard. 1949.

Compendio di Elettrocardiografia. By Professor V. Debenedetti and Dr. M. Ravera. (Pp. 227. 2,000 lire.) Bologna: Nicola Zanichelli. 1951.

Die Chirurgie der Poliomyelitis. By Dr. H. Sjövall. (Pp. 98. M. 13.80.) Berlin: Walter de Gruyter. 1951.

Spezielle Pathologie der Krankheiten des Zentralen und Peripheren Nervensystems. By Dr. G. Peters. (Pp. 437. M. 56.) Stuttgart: Georg Thieme. 1951.

In *Medicine in Britain* (Longmans, Green and Co., 2s., 4th ed., revised) Dr. Hugh Clegg sketches the medical scene to-day and discusses the main developments over the last hundred years or so. Though the book is intended for a wider public, medical students may find something of interest here, and in an hour learn much about the complex and sometimes haphazard world where they will spend their professional lives. In revising this booklet—which was written during the war for the British Life and Thought series of the British Council—Dr. Clegg has added much new material on the National Health Service. Eschewing detailed references to Acts and regulations, he gives a conspectus of its main features, together with comments on how they developed from previous schemes, and he includes short accounts of such institutions as the Medical Research Council, the Lister Institute, the G.M.C., and the British Medical Association. Illustrations and bibliography complete the essay. The face of British medicine appears as one full of character, with some oddities here and there, an attractive mixture of innocence and experience.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY AUGUST 25 1951

CAREERS IN MEDICINE

When a boy or girl decides, towards the end of school life, to take up medicine as a career, he and she probably think of little else but of becoming a "doctor." Though in some cases the decision may be based on little more than a desire to follow in a family tradition, the motive is fundamentally altruistic. A living has to be earned, it is true; but the way is chosen to do something of practical good to the community. As a guide to students and their parents it has been the custom for over 80 years to publish each year an educational number. In the succession of issues that have appeared information about universities, medical schools, diplomas, and so forth has been collected and brought up to date. Such information must be available in some form or other, but the matter-of-fact recital of the requirements of various educational bodies can give the student and his parents nothing more than a stern guide to the path of duty. Such a guide-book can convey none of the romance, excitement, and variety of the medical life. Both the student and his hard-pressed parents probably have their eyes fixed on the qualifying examination which will release the student from tutelage and his parents from a heavy financial burden.

When approaching a qualifying examination some few students may have a clear idea of what their career is to be, but for most, we believe, the future is a blank map. What guidance the newly qualified man gets must depend partly upon himself and partly upon the dean of his medical school, but one has the impression that there is little systematic attempt to provide for medical students that guidance to a career which has now become the practice of the public schools which have on their staff a master or mistress for this purpose.

The newly qualified doctor can have little idea of the different forms of experience medicine has to offer and, in particular, of the kind of life he might lead in general practice, in consultant practice, in the Colonial Medical Service, in the public health service, and even, say, in medical journalism. The opening pages of this week's *Journal* have therefore been thrown open to a number of men who have had long experience in different kinds of medical work. They were invited to take part in an experiment in autobiography. They were asked to look back on their student days and to try to recall those events and influences which shaped their subsequent careers. Why did they decide to become doctors? What kind of guidance did they receive from their deans? Were they influenced by family tradition or by personalities in their medical schools? Were they helped or hindered by economic factors? What part did chance or luck play in their final selection of a career? Here, perhaps, was an embarrassing set of questions to put before a group of professional men, conscious, no doubt, that those who would read what they wrote would be on the lookout for the pitfalls of egotism. Yet, by agreeing to bring to life in this way what the practice of medicine actually is like in some of its phases, they have backed up the idea that this would tell the student and his parents much more about a medical career than a dry list of what authorities require for this, that, and the other kind of practice.

Not all medicine is represented in our symposium, nor could it be; but it gives a fair and, in many passages, a lively account of the various phases of a doctor's life—from academic medicine to the Colonial Medical Service. As most medical students are destined to be general practitioners, three contributors tell their story of general practice—in the country, in a colliery district, and in what is usually described as a residential area. It is interesting to note that by chance one of them was diverted from his intention of going into the Malay Medical Service. Chance, again, turned the clinical pathologist aside from his set course for Kenya. The consulting physician was four years in general practice and then by chance his eye fell upon a suggestion in this *Journal*, and by following it up he was able to get on to the staff of his old hospital. One of our contributors began life in a bank; another as a teacher in elementary and secondary schools.

For men now past middle age, the freaks of fortune played a big part in shaping their ends. But there was something invigorating in accepting the challenge that chance presented, and out of the conflict with circumstances there emerged men in medicine who enriched it by their example, their teaching, and their practice. To-day the scene is changing, and the tendency is to select by vocational and other tests those who should do this and those who should do that in a profession that offers much for every type of temperament and ability. There was a certain rough justice in the old mode of life, but the contributors to our symposium show surely that there was spice and variety in it and something that called forth initiative. May the new ways do the same!

PROFESSIONAL FREEDOM

Bernard Shaw thought that the N.H.S. would lead to a medical dictatorship, and that in this the freedom of the individual, whether unconventional patient or unorthodox healer, would be threatened. But doctors, by and large, feel much more that it is their own freedom which is in peril. The present close association between State and medical profession is one which is not without its embarrassments to both. It is an uneasy partnership, and until existing tensions are relaxed Medicine will suffer and the public —whom State and Medicine exist to serve—will remain dissatisfied. Whatever an older generation may think about current discontents and dangers, youth seems to be undismayed by all this, if one is to judge by the large numbers clamouring to be admitted to the medical schools. Here, at least, is an old and sound instinct at work, a manifestation of the continuity of Medicine, which will always in the end ride the storm of the contemporary distractions of society and politics. The proper study of mankind is man, and in this modern medicine is at the heart of the matter as never before—how variously is shown in the opening pages of this week's *Journal*. Yet unless the spirit of medicine remains free and unfettered it may, unless we are vigilant, undergo a sea change, and the mainsprings of its inspiration be damped down.

The choice of "professional freedom" as the theme for his Croonian Lectures[1] by Dr. T. F. Fox, Editor of the *Lancet*, was therefore timely. In an unstable society he asks us "to consider the usefulness of professions in counteracting social disintegration." He believes that "in a society largely composed of rootless men and women . . . professions, such as law and medicine, are a source of special strength because they have roots going deep into the past and give us a sense of continuity." But the present social context of Medicine is the Welfare State, in which, it may be assumed, the sponsors of it seek to diminish the numbers of the rootless by offering a widespread measure of social security. In sickness or in health, for better or for worse, the Welfare State offers its citizens a cushion of protection against the buffets of Fate. Some measure of protection is essential, but there is a danger that life will become so secure that individual effort will be at a discount and individual irresponsibility at a premium. By seeking to make this what Mr. Churchill—that exemplar of the opposite —called the age of the common man, the extreme exponents of the Welfare State may expose us to the danger of making all men common. Not content with raising the level of the many, they show a tendency to drag down the level of the few, and in this process the professional classes are the sufferers. A pretty example of this was shown recently when a town councillor opposed raising the salary of a medical officer of health on the grounds that the wages of some workers were in his view too low. This is envy and spite at work, and shows ignorance of Dr. Fox's sound conclusion that "professionalism, with all its faults, has proved to be one of the major civilizing influences of our time." And it adds point to another of his conclusions: "The real threat to professional freedom comes, of course, from so many professional people now finding their livelihood in services controlled and paid for by the State."

This is the dilemma not only of Medicine but of all professions in the Welfare State. As much as one should like to, we cannot as a profession ignore the impact of these influences on Medicine. This is not to suggest that we should enter the dusty arena of party politics, but that we should make our voice heard about the relationship between Medicine and society, between Medicine and the State. A. N. Whitehead[2] saw the professions making progress, but each "progress in its own groove." "Now to be mentally in a groove," he wrote, "is to live in contemplating a given set of abstractions. The groove prevents straying across country. . . ." He deprecated "the restraint of serious thought within a groove," and believed the dangers of this aspect of professionalism to be particularly great in democratic societies. Carr-Saunders and Wilson,[3] taking up this observation of Whitehead's, suggest that professional men, while not "innately reactionary or unprogressive," lack vision. "The pity of it is," they write, "that their opportunities are so great and that they have so large a part to play, if only they would open their eyes and summon up courage to act in the larger issues of contemporary life."

The large issue before the medical profession to-day is its relationship to the State, in all civilized countries, but especially in Britain. Unfortunately this relationship so often comes before the public as a financial one, and it is to be feared that some doctors, too, may see it primarily in this light. As Dr. Fox so rightly warns us, present trends are driving all professions into "working in services directly or indirectly provided by central or local authorities." And with a cautious sidelong glance abroad he sees how this tendency can end in a police state with absolute power in the hands of a

1 *Lancet*, July 21, p.115; July 28, p.171.
2 *Science and the Modern World*, 1928 (reprinted), p. 245. Cambridge University Press.
3 *The Professions*, 1933, p. 498. Oxford University Press.

few men. Dr. Fox quotes a passage from J. S. Mill's *Essay on Liberty*. Mill saw that, if the functions of the Government extended in the particulars he enumerated, "not all the freedom of the press and popular constitution of the legislature would make this or any other country free otherwise than in name." And to this Dr. Fox adds the depressing comment: "If Mill was wholly right, the battle is now lost." In the same essay Mill wrote that "there is a limit to the legitimate interference of collective opinion with individual independence"; and also this: "But where everything is done through the bureaucracy, nothing to which the bureaucracy is really adverse can be done at all." There is little doubt that very many doctors, especially in general practice, do feel that the collective opinion which brought in the National Health Service has thus interfered too far with individual independence. And when we witness the weed-like growth of the bureaucracy we cannot help but wonder how long it will be before the sweet flower of liberty will have the life choked out of it. It is not without significance that in reaction to the N.H.S. a voluntary association of medical men and women has chosen the title of Fellowship for Freedom in Medicine to signify its aims.

If our relationship to the Welfare State is what looms largest on our professional horizon we should have the courage to criticize it however unpopular such a course may be. It is so easy to take refuge behind such phrases as, "The greatest good of the greatest number," without inquiring further what the greatest good is. Doctors of all people want to see the evils of poverty, ignorance, and fear overcome, for these are prolific breeders of ill-health and unhappiness. But when we see the Welfare State turning itself into a wet-nurse for all and sundry to suck dry we may well ask whether a people forced into such infantile dependency will ever grow up with a sense of adult responsibility. Bernard Shaw, Dr. Fox reminds us, hit the nail on the head when he said: "Liberty means responsibility. That is why most men dread it." How easy it has become for George Orwell's "Big Brothers," the power-hungry demagogues, to exploit the average man's wish for an easy life with the minimum of responsibility! In Medicine this is the crux of the matter. The public as patient is told that it can have all the resources of modern medicine for (apparently) nothing, yet we see a Government which has made this offer allowing a drug such as "aureomycin" to be exported while general practitioners cannot use it for their patients. Meanwhile it has not the courage and honesty to damp the public's appetite for the harmless (but, pharmacologically, often useless) bottle of medicine. Mr. Bevan said he was horrified at the quantity of medicine going down people's throats, and then boasted of his skill in manœuvring his way out of the Government's proposed shilling tax on medicines. Small wonder that the sense of responsibility gets less and less.

The danger to our own profession is that it, too, might have its sense of responsibility insidiously sapped. The more its freedom is encroached upon the more is this likely. Carr-Saunders and Wilson observe of the professional man that "though he remains salaried all his life he takes his stand upon his proved competence and experience; he serves one client after another much as does a free-lance worker." Dr. Fox, taking his cue from the passage in which this sentence occurs, states his position thus: "This conception of the professional man as belonging primarily to his profession, *from which he is seconded to particular posts*, seems to me fundamental if we are to preserve professional freedom in large organized services." (Our italics.) In another passage Dr. Fox expresses his preference for the payment of doctors in the National Health Service by a professional guild, adding that such an arrangement might "be particularly worth considering if in future it is found desirable for the family doctor to be paid by salary rather than by capitation fees." Later he considers it not unreasonable that a doctor paid from public funds "should serve his patient even against the immediate interests of the State which provides his salary." There appears to be here a conception with which most practising doctors are likely to disagree. The words in italics (following the statement of Carr-Saunders and Wilson) and the other references to salary suggest that Dr. Fox sees medical men as becoming salaried persons in a service, to be seconded to this or that post: and by whom? If we have not misinterpreted him, then disagreement is likely to be fundamental. That certain services, as in public health, are best performed by salaried persons is not questioned. That certain persons, too, are more content in a salaried position is obvious, and in his article this week Dr. Avery Jones points out how much such persons owe to their colleagues working in the more haphazard field of private practice. But the free-lance planner, the ideologue, the man in the bureau are irresistibly attracted by centralized power exercised finally on the salaried employee. Yet to the extent that any third-party influence comes between the physician (whether specialist or general practitioner) and the patient he treats, by so much is the sense of direct respon-

sibility between the two lessened. The stress on freedom of choice is an expression of this. The State, being the paymaster, is an all-powerful third party.

The cost of modern medicine makes it essential to provide financial aid in sickness to all but a small proportion of a civilized community, whether this is through insurance or through State funds. And in this country State aid, first in N.H.I. and now in N.H.S., has been accompanied by certain methods of paying doctors for the work they do. Now that almost all general practitioners receive almost all their income from the State they are in obvious danger of progressively losing much of their freedom. Certainly this situation results in disputes which embitter relations between the profession and the Government and its administrative departments, and the two tend increasingly to distrust each other. Under National Health Insurance what defects there might have been in payment by capitation fees were to some extent masked by the fact that practitioners also received direct payment from private patients. In general, though, the capitation payment was accepted as a suitable method of remunerating doctors. But whether this is going to be the case under the N.H.S. remains to be seen. Present preoccupation with the size of lists casts some doubt on this. The very fact that it is necessary to define limits of lists is a sign of distrust. If the capitation fee were adequate no one would be tempted to take on more work than he could do. With adequate payment limitation of lists by regulation would be unnecessary. The State's approach is to impose more restrictions instead of seeking to liberate. At least these problems should be looked at afresh and the validity of old assumptions should be questioned. For example, the New Zealand experience may yet have lessons for us, now that the first flush of extravagance seems to be over. One thing that must be resisted is the salaried service favoured by the Labour party.

Dr. Fox points a warning finger at the State's record in education. Successive Governments have, as he puts it, "succeeded in attaining just the nice balance of poor salaries, poor conditions, and second-rate qualifications that enables the educational system to function . . . have given the profession of teachers in maintained and aided schools a status that deters large numbers of the people most needed in these schools." The same kind of thing can happen in Medicine. But Dr. Fox sees reason for optimism in the "considerable strength of the medical profession—more apparent perhaps to others than to ourselves." It is true, as he says, that we must "achieve our necessary freedom within the broad plan laid down for the National Health Service." The Government has blundered badly in its management (or mismanagement) of the economics of the Health Service. In his recent presidential address to the Metropolitan Counties Branch of the B.M.A., Mr. Lawrence Abel showed that he did not mind "straying across country," as Whitehead puts it, and cogently argued for the introduction of charges in the N.H.S. There is no escaping the conclusion that some direct payment (even though in small part) for whatever goods or benefits are received calls forth some sense of responsibility. The State's function should be to aid and to subsidize when, as in medicine, this is necessary. But in trying to take over, as it is doing, the whole financial responsibility for the complicated apparatus of medicine it is bound to whittle away that freedom without which a profession cannot give of its best to those who need its help. Dr. Fox began his first Croonian Lecture by observing that "the relief of ideological tension under Charles II suited Croone," for it favoured "inquirers after knowledge." How much more do we need such relief now! But before we get such relief we shall have to think hard and take a hint from Whitehead not to remain in a mental groove.

STUDENT HEALTH

Students do not as a rule worry much about their own health. Since the war, however, special health services have grown up rapidly in British universities, and student organizations have shown themselves in favour of making physical and radiological examination compulsory for all students.[1] This increased interest has led to the formation of the British Student Health Officers Association announced in a letter from Dr. Parnell elsewhere in this issue and to a symposium held at the British Association meeting at Edinburgh on August 15 and reported on another page. The special medical care being given to students has already shown that they stand as much in need of health education as does any other class of the community, and Sir Alan Rook[2] has pointed out that the routine physical examination of undergraduates helps to allay unnecessary anxieties and prevent useless self-medication. It has become quite clear, too, that tuberculosis, which may involve an average loss of two years in a university career, is a serious threat to the student and requires special provision for its treatment. Speaking in the symposium Sir Alan said he thought about 500 British students were at present in

1 *Health Committee Report of the National Union of Students*, 1948.
2 *Cambridge University Reporter*, 1950, **80**, 707.
3 *British Medical Journal*, 1951, **1**, 313.
4 Ibid., 1951, **1**, 1131.
5 Parnell, R. W., *Lancet*, 1951, **1**, 731.
6 *British Medical Journal*, 1951, **1**, 1292.
7 *Oxford University Gazette*, July, 1951.

sanatoria and a further 2,000 under treatment or observation. Britain lags behind in making provision for the special needs of the tuberculous student, and the British Student Tuberculosis Fund[3] launched at the end of last year proposes to provide facilities for continuing university education inside sanatoria if it can collect the necessary gifts of money.

But while early recognition of tuberculosis is particularly vital it is the mental health of students which offers the most rewarding work in preventive medicine to the university health officer. It is significant that the commonest complaint of Cambridge undergraduates at their health examination was sleeplessness,[4] and that at Oxford more than half of the illnesses which caused the loss of one term's work were mental in origin.[5] Mr. T. R. Henn draws attention to another aspect of mental health in "The Causes of Failure in Examinations" on page 461, an article of unusual interest.

The benefits of student health examinations are not restricted to the individual. University health officers have been finding that students provide an untapped source of research material. At Oxford, for instance, physique has been studied in two completely different ways. First, as Dr. R. W. Parnell has recently described in this *Journal*,[6] the build of athletes has been related to performance on the track, and, secondly, the physique of undergraduates unduly prone to (1) hay fever and dyspepsia and (2) apprehensiveness and nervous erythema has been found, by somatotyping, to conform to characteristic patterns.[7] Social medicine should gain much from investigations of this kind.

INTELLIGENCE TESTS

The proposal to measure mental differences between individuals by means of psychological tests originated with Francis Galton. As a result of his investigations into men of genius he concluded that success in any profession is due to qualities of four main kinds—physical, moral, emotional, and intellectual. Intellectual qualities, he held, were of two sorts—first, "general intelligence," entering into every kind of mental activity, and, secondly, "special aptitudes," limited to comparatively narrow fields of work. By intelligence therefore we must understand innate, general, cognitive ability: it is to be distinguished both from other abilities which are either special or acquired and from characteristics that are moral or emotional rather than intellectual or cognitive.

That there is such a mental characteristic is no longer disputed. For long, it is true, a heated controversy continued about the need for two kinds of intellectual capacity. Many British psychologists, like Ward and Spearman, contended that special aptitudes were no more than a belated survival of the old-fashioned "faculties": general intelligence, they thought, sufficed to explain all mental differences that were not acquired. American writers, on the other hand, argued that general intelligence was no more than the sum total of a person's special aptitudes. However, more recent research, particularly the analysis of data obtained from the tests applied to recruits throughout the recent war, has at last definitely shown that both kinds of ability are needed to explain the established facts: both appear to be innate, though both are highly complex. After all, that is what we should expect from our knowledge of the structure and functions of the cerebral cortex.

Owing largely to the fact that Galton decided to set up his biometric laboratory at University College, London, most of the early British work on mental testing was carried out chiefly by Galton's own immediate followers—Pearson, Sully, McDougall, and their younger pupils. The subjects of their experiments were for the most part children of school age; and in the schools, both for discriminating doubtful cases of mental deficiency and for selecting potential scholarship winners, intelligence tests have proved a most valuable adjunct to other means of diagnosis. Later on, the use of intelligence tests by the British and American armies during the first world war and by the Civil Service Commissioners after the war was over showed that such methods were equally practicable with adults. At the London Day Training College applicants for training as teachers were regularly chosen on the basis of an interview in which intelligence tests formed an essential part; and during the past few years experiments have been made on their use in selecting entrants to the medical profession.

With medical students the results obtained vary widely and, so far at least, do not appear to be quite so reliable as American experience might have led us to expect. But the reasons seem fairly obvious; and several practical conclusions may already be drawn. First of all, unless the tests are constructed by psychologists who are themselves experts in test construction their value is likely to be greatly impaired. Secondly, their chief function is negative rather than positive. A performance below a definite minimum can generally be trusted to indicate that the candidate will probably fail in his examinations; but although a good performance usually indicates good marks in subsequent examinations it will of itself by no means guarantee a proportionate degree of professional success in later life. Finally, intelligence tests alone are insufficient. They are most effective when supplemented by interviews, standardized reports, and other devices for obtaining information about each candidate's relevant qualifications—his temperament and character, his special aptitudes, and his general culture and educational background.

TEACHING GENERAL PRACTICE

Both the Goodenough Committee and the G.M.C. were at one in stressing that the bias of medical education should be towards the needs of the general practitioner. Indeed, they could hardly say less when so many of those entering the medical schools are destined for general practice. But how is the future general practitioner prepared for his work? He is apprenticed to consultants and specialists. He is given a basic education in the sciences. He is taught logical diagnosis and, within the limitations imposed by work in a hospital, treatment.

But he learns little about general practice itself. It begs the question to say that lecture courses on public health and forensic medicine include instruction on the ethics of practice or the statutory and other responsibilities of the general practitioner. There is a world of difference between teaching about a subject and teaching the subject itself. The best way to learn the problems and difficulties of general practice is to do the job oneself under the guidance of a good practitioner, first watching him at his work—just as the consultants are watched and imitated—and then assisting, gradually taking more and more responsibility. This is the way of the apprentice.

Medical students should be taught their craft by those who practise it, and at least some of the medical schools are beginning to call on their local practitioners for help in this. In some schools, practitioners give lectures about general practice, and at Cambridge there is for those who have finished their premedical subjects a course which includes lectures on the background of medical practice and the practice of medicine in the home. At Belfast students are given a course of six lectures by a general practitioner. But more than lectures is wanted, welcome though the appearance of general practitioners in the lecture theatre is. At Glasgow a general practitioner helps in the out-patient teaching in one of the medical units, and at Edinburgh, the Westminster Hospital; and at Sheffield students are able to attend general practices outside the walls of their hospitals. These experiments, especially the latter, are of great interest, and it is to be hoped that those carrying them out will let other schools know whether or not they are successful.

At Edinburgh students have for many years attended the city's four public dispensaries as part of their training. It was possible in 1948, after the passing of the Act, when it became clear that the public demand for these dispensaries would gradually disappear, to take one over—the Royal Public Dispensary (founded in 1776)—and to develop it for teaching general practice under the department of public health and social medicine. The practice is conducted by one of the department's senior lecturers (with assistants) and provides 40 students each year with a three-months course. At first the student watches the doctor; next he is introduced as a "student assistant" and takes his share in examining and treating the patients; and, lastly, the significance of what he has been doing is driven home by case conferences. But it must be asked whether a lecturer from a public health department has in fact had experience in general practice, or whether at least his assistants have. Surely such a course should be in the hands of an experienced general practitioner.

The professor of social medicine at Sheffield has encouraged a scheme in which, since April this year, final-year students may attend local doctors at their surgeries and on their visits. This has been possible only through the ready co-operation of the city's practitioners. The course lasts a fortnight, and, although entirely voluntary, practically every final-year student elected to take it. This speaks for itself. King's College Hospital has started an experiment in which a small group of students have been attending general practices as observers, but as yet this does not form part of the official curriculum. St. Mary's Hospital is now making arrangements for its final-year students to attend singly at selected practices as observers for periods of up to five days. About 12 practitioners have agreed to co-operate in this, and so far as possible the practices have been chosen so as to be as diverse as possible—there are included, for instance, examples of typical rural, urban, and industrial practices. Several other medical schools are considering schemes of this sort, and no doubt they will be watching these experiments with great interest.

KILLING THE CONJOINT

A correspondent has suggested that we should refer in the education number to what he believed to be a fact—namely, "that although the Conjoint Board exists there are no facilities in London for students to obtain this qualification, unless they enter for the M.B. course." In the Goodenough Report on medical schools,[1] published in 1944, it was argued that in London competition between the University and the Conjoint Board was educationally bad. The authors of the report considered that the course of study provided by each medical school should be that prescribed for the university degree. They thought it undesirable that London students should be encouraged to take two final examinations, and that the payment of two separate examination fees was not justified by the benefits obtained by the students. Again, they argued that it was not in the student's interest to read for the M.B., B.S. after qualification. As one way of enforcing this policy the report considered whether university grants to medical schools "should not be conditioned in some way by the number of students obtaining the university degree over a period of years." On analysis of registration during the years 1933–7 it had been found that just over 5% of men in London medical schools took the university degree as their sole registrable qualification, and just over 18% of women; comparable figures for universities in the Provinces and Wales were 61% and over 74%, and in Scottish universities 97% and 99%. It was found, too, in London that the percentage of men taking a university degree as their first or second registrable qualification was 45 and of women nearly 57.

An inquiry sent to the deans of medical schools shows that, with one doubtful exception, no London medical school will now accept students for the Conjoint diploma only, and that at least four of these have introduced this bar since 1945. Replies from seven provincial universities show, too, that students are not accepted there for the Conjoint diploma only. The Goodenough recommendations are taking effect, and it would seem that the Conjoint diploma is on the way out. Its advantage to the student is that it often enables him to qualify earlier than by taking the university degree, and the examination hurdle can be taken in

[1] *Report of Inter-Departmental Committee on Medical Schools*, 1944 H.M.S.O., London. 4s. 6d.

stages. The Goodenough Report observes that the Conjoint is "of good vocational standard"; dare it be said that it is, too, tougher than some university examinations for the M.B., B.S.? One great point about it is that it is conducted by those who in the Royal College of Physicians and the Royal College of Surgeons are masters of the art and craft of a practical profession.

ARBITRATION ON G.P.s' PAY

At a special meeting on August 15 the General Medical Services Committee welcomed the acceptance of arbitration by the Minister of Health and the Secretary of State for Scotland. The Special Conference of Representatives of Local Medical Committees on July 19 passed a resolution requesting the Minister of Health "to refer to arbitration the determination of the proper size of the central pool, having regard to the recommendations of the Spens report and to present-day money values, such arbitration to be arranged without delay." At its last meeting the G.M.S. Committee had before it a letter[1] from the Ministry of Health stating that the Minister of Health and the Secretary of State for Scotland would be prepared in agreement with the G.M.S. Committee to seek a decision by an independent adjudicator. Discussing this reply, an account of which appears in the *Supplement* at page 69, the Committee decided to arrange to discuss with the Ministry the names of persons likely to be acceptable to both sides as an adjudicator "before committing the profession to arbitration other than by a recognized court." The Committee assumes also that the discussions will include the precise terms of reference for the arbitration and agrees that the adjudicator should be asked to decide the date from which any new sum should apply.

Subject to the overriding authority of Parliament, the Ministers agreed to accept the adjudicator's decision, but made two provisos. These were (1) that the G.M.S. Committee should also undertake now to accept the decision, and (2) that an agreement satisfactory to both sides is reached on a revised plan of distributing the central pool calculated on the new basis. In response the Committee undertakes to accept whatever decision may be reached following the arbitration. As to the second proviso, the Committee has agreed, on certain conditions, to co-operate in a joint Working Party to investigate a revised plan of distribution in accordance with the recommendations of the Spens report. The Committee has assured the Ministers that "it would be the aim of its representatives on a Working Party to work harmoniously with a desire to provide the best possible service for the public and make possible a better and happier atmosphere among the doctors who take part in it, but in the Committee's view the profession would feel rightly aggrieved if the award following arbitration were nullified by failure to agree in the Working Party upon a proper distribution of the pool." The Committee has offered to send a deputation to the Ministry to discuss details, and a reply from the Ministry is now awaited.

[1] *British Medical Journal, Supplement*, 1951, 2, 56.

THE CAUSES OF FAILURE IN EXAMINATIONS*

BY

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When I was asked to open a discussion on the causes of failures in examinations my first reaction was to ask myself, "Is there a problem at all?" Under present conditions at Cambridge the incidence of failure in examinations should, in theory, be negligible. The pressure of admissions is such that, given efficient selection of the material, every candidate who enters the university should be capable of passing all his examinations without undue difficulty. The actual figures are difficult to ascertain, but it seems likely that between 15 and 25 candidates are rejected for every one accepted throughout the university as a whole. Theoretically the field should be large enough to ensure that those finally chosen have full academic qualifications. Therefore there should be no failures, other than the "calculated risks."

I use this phrase deliberately of an interesting and important (though numerically small) class of undergraduates, and I must explain what I mean. In brief, they are—I speak for my own college only—men whose paper qualifications as regards examinations passed before matriculation are below those empirical standards which we find to be effective guarantees of a good honours degree, but who should, we think, be admitted to the college for one or more of the following reasons: (*a*) as having a planned "single-minded" career before them—such as medicine, architecture, engineering, business; often with potential inherited responsibilities; (*b*) as having special personal qualities, or talents, to contribute to the corporate life of the college; and (*c*) in the years immediately after the war, special "hard-luck" cases—the "broken men" whose main chance of rehabilitation was a university career.

These men were, and are, accepted with full knowledge of the risk, in the belief that they have an outstanding contribution to make, as graduates, to the national life. Often they are pass degree men. If they fail, "it's just too bad"; but it is surprising how seldom they do. And they are never the "nerve" cases with whom I shall be mainly concerned.

The Failures

I now turn to what we may properly consider the "failures." These I hold to be men who, with adequate or outstanding paper qualifications—records in school or public examinations of various kinds—either fail completely in their examinations or produce results far below what is expected of them. I would instance the case of the scholar or exhibitioner who gets a third class, or is allowed the ordinary degree—since we regard a scholar as a safe top second, with an even chance of a first, and an exhibitioner as a safe second with, say, one chance in three of a first. (I should not class a low second as a "failure" in either case, as there seems

*A paper read to the Third Student Health Conference at Cambridge on July 6, under the auspices of the Nuffield Provincial Hospitals Trust.

to me to be a steady possibility of error in the initial selection of scholarship candidates. I believe that we should have this "error" constantly in mind.)

As regards the numbers involved, I should, under present conditions, put the complete failures among honours candidates at about 1 to 1.5% of the total sitting for examinations, and the partial failures, those with unexpectedly poor performance (having regard to their previous university work), at about 2.5%. In a college such as mine these might represent four and eight men, respectively, each year. I understand that, for the whole university, the number of men not classed in the tripos examinations for 1945–9, taken together, was 5.1%. No doubt this would include some cases of illness.

These figures are, of course, ridiculously low compared with, say, the 40% rejects at certain U.S. universities at the end of the first year, but they do constitute a certain "loss."

System of Selection

From one point of view such "losses" may be held to represent a failure in the system of selection, and in order to carry my argument a stage further I must explain, in the barest outline, how that system works.

A typical year's entry at my college is composed of the following classes: (*a*) Scholars and exhibitioners, selected competitively on the results of the entrance scholarship examination. Say 25% of the intake. (*b*) Others selected on the same examination, often actual or potential State or county scholars who have, in addition to their scholastic qualifications, strong personal qualities. Say 25–35%. (*c*) Other commoner entrants, highly selected on interview plus school credentials, with a known minimum academic standard sufficient to ensure their obtaining an honours degree. Say 15%–30%. (*d*) "Calculated risk" entries. (*e*) Those who for one reason or another cannot be interviewed before admission—for example, because they are overseas. (*f*) Serving officers and certain similar special cases.

For the moment I am remarking only on the fact that I should not expect failures of any kind in groups (*b*) and (*c*). There may well be in group (*a*), as this will include examples of the potential genius whose development is not always predictable.

Now selection—other than that of scholars and exhibitioners, who are the subject of a written recommendation by the examiners which is not normally challenged—can be considered as being dependent on two sets of factors, positive and negative. In each group I mention only those factors which bear upon our subject.

Among the positive I include energy; independence of mind; possession of an objective, or a deliberately assessed lack of one; capacity for readjustment at the university; a range of interests outside purely academic work; sufficient independence and humility to profit from the pupil–teacher relationship; and some scale of what one must call (very loosely) "philosophic" values, however immature.

On the negative side one might suggest undue suggestibility; an anxiety-pattern so pronounced as to be abnormal; sexual maladjustment; an undue sense of responsibility to the past—for example, parents, school, etc.—rather than to the future; undue aggressiveness; lack of social adaptability; and a negative tendency to the "philosophic" synthesis mentioned above.

It should be noted that it is the positive aspects that suggest themselves from the school records and testimonials; in only a few instances are the negative ones suggested. It is unlikely that the boy with overt negative aspects will get as far as an interview. We are therefore left with the residual cases—that is, boys with a considerable positive record, whether academic or "special" (but not "all-round" qualifications), whose negative aspects are not discernible until the interview stage.

Primary Causes of Failure

I am going to suggest that "failures" in examinations are, for the purpose of our consideration, to be accounted for in terms of one or more of these "negative" aspects. You must remember (*a*) the highly competitive nature of the university entry, and of the schools "ladder" that leads to it; (*b*) the fact that there is, practically speaking, no financial barrier for a boy of moderate ability; (*c*) the consequent blending (or confusion) of the social strata; (*d*) the modern tendency to produce very small families; (*e*) the undue value placed by certain social strata on a university degree (because of its step upward); and, in consequence, (*f*) the undue importance attached to failure at any given stage; coupled with (*g*) a pathetic faith in the infallibility of examinations (or, as a correlative, an angry denunciation of all examinations).

I suggest that there are three, and only three, primary causes of failure in examinations. I attribute them, not to any one negative factor, but to a number in combination.

(1) An incapacity to work, in an effective sense. Such boys will "work"—that is, sit in front of books—for long hours, absorb little or nothing, and consequently fail to retain even the bare minimum of knowledge. Such boys have been badly taught at school. But except as "calculated risks" we see little of them, as they are most unlikely to have overcome our preliminary hurdles.

(2) Insufficient work, through dispersal of interest and energy; though it should be noted that the boundary between this dispersal and the highly desirable extracurricular activities is often a delicate one. These boys again are rare, and not very interesting. They can usually be picked up, and checked, in the early stages of their university career.

(3) Failure through some form of what may be loosely termed "breakdown," either before or during the examination.

It is this last class which I wish to consider in detail.

Cases of "Breakdown"

So far as we can generalize, I should expect to find, in each case of a "breakdown," one or more of the following factors: (*a*) Acute anxiety about the result. (It should be noted that a system of once-a-year examinations probably accentuates this state. Continuous testing by terminal examinations might be less objectionable.) (*b*) Insecurity in the family constellation, leading to a wider sense of social insecurity at the university. Factors in this may be divorced parents, an unbalanced upbringing through the death of one parent, an unduly dominating parent, and so forth. (*c*) Sexual infantilism in some form, often associated with (*b*). (*d*) Failure to adjust to the highly complex

conflicting claims at the university. (*e*) A history of "invalidism" in adolescence—for example, a long succession of minor ailments.

The manifestations are of two kinds.

(1) The simple "refusal to face the fence" so familiar to psychiatrists: more especially the last fence, if one or two have been cleared previously with outstanding success. This is the typical "nervous breakdown," often with functional symptoms. It is apt to be produced up to and including the morning on which the examination starts; it does not often appear, say, more than a week before, though its causes have no doubt been latent for some time previously. As regards this state, two points may be noted: (*a*) These "breakdowns" have a strong "infection" or "epidemic" aspect. They appear to be readily communicable in undergraduate society, and can be arrested by strong action on the part of the authorities—for example, by the announcement that *aegrotats* will not readily be given for such cases. (*b*) They often yield to "shock" treatment—for example, by telling a man that he *will* go into the examination, or else . . .

(2) The "flap" or breakdown in the examination itself, sometimes amounting (so far as one can judge) to a mental black-out.

Again it is this last case that I find most interesting. Here I propose to digress a little to draw a lesson from war experience.

The Phenomenon of "Flap"

Perhaps one could define the phenomenon of "flap" in war as a mental state which rendered the individual incapable of evaluating the component factors in a rapidly developing situation, and therefore incapable of embarking on any considered sequence of action such as would result from a logical assessment of them. From another angle, the symptoms might appear as rapid and violent physical actions (themselves an expression of mental disturbance), or, in extreme cases, of a kind of physical paralysis.

Such states seemed to be produced (as a rule) by the over-rapid impact upon the individual of a large number of stimuli perceived as serious—that is, with possible grave consequences—upon a mind which, by reason of its state of tension, was unable either to judge them relatively or to force them into a logical pattern, with a view to initiating effective action.

Now I had the good fortune to go through the highly compressed "war course" at the Staff College in 1942, as one of the oldest officers who had ever done that course. Of my fellow students some 70% were regular officers; 30% were amateurs like myself. It became very clear to me that one of the things that was being tested was the liability to "flap"; for if officers "flap" in training they will, *a fortiori*, be liable to do so in battle. The technique was to load each individual with a series of widely differing problems to be worked simultaneously, and against time, without much rest or sleep, over a period of some 10 days, though there was no formal examination.

Watching myself and my brother officers under such conditions it became clear to me that "flap" under these or examination conditions was a very real thing, in no way to be despised or ridiculed. There was obviously a greater tendency to it among the regular officers, as their careers were involved; the irregulars could regard matters more light-heartedly. Further, while certain temperaments were more liable to lapse than others, it was clear that these were not necessarily the highly strung types, which, indeed, often became cold and doubly efficient under pressure. It looked as if the key were to be found in certain fairly simple psychological attitudes, and I decided to watch for these when I ceased to be a pupil and became a teacher again.

Strain of Examinations

At the root of it all, I am convinced, is the perspective in which the examination and its results are seen. Sir Herbert Grierson used to say to his pupils: "The publication of the Class List doesn't mean that the day of judgment has come." It hasn't: but who, at the age of 21, will conclude, of his own accord, that this is so? Further, the lower the candidate is on the social ladder, the greater will appear to be the "career" rewards of doing well, and the greater the importance he will attach to the result. The well-to-do classes may regard an examination result as important, but not all-pervading in its significance, for their possible field of employment is wider, their tradition more flexible, and they have known the public-school tradition of real or affected *insouciance* when confronted with any type of crisis. They have been at boarding-schools; and hence the break with home, which often upsets the secondary-school boy, has no significance for them. They have been taught to regard a university career as their right: to others it may be, literally, a unique opportunity in which failure seems, for the moment, to spell disaster.

Now any examination which tests the results of one or two years' consolidated work by some 18 hours of high-pressure writing is a considerable strain. All we can say in its justification can perhaps be summed up thus: (*a*) it seems to be less open to objections than the other alternatives that have been suggested; (*b*) its "crisis" aspect appears to have some value as a test of the individual's capacity to deal with similar crises that will recur through his life; (*c*) its results seem to afford a rough correlation with observed development in later life—that is, within limits it is an adequate test of certain kinds of ability; and (*d*) it does not appear to produce any serious after-effects.

But it is true to say its critical and concentrated nature tends to show up, rapidly and violently, any serious psychological maladjustments; though there is no reason to believe that these would necessarily show up in later life.

Attitude to Examinations

To sum up, then, I would suggest that the most interesting examination failure is that of the candidate who "flaps," becomes uncoordinated, and who fails to reproduce in these conditions the "form" that one associates with his record before admission and his work in the period before the examination.

I would attribute this state, as a general rule, to the following: (1) Overanxiety about the result, and, basically, an intellectual and emotional failure to perceive the place of the examination in the pattern of life. (2) Overanxiety produced by (*a*) the consciousness of the long ascent of the social and intellectual ladder of which the examination represents, to him, the crisis or climax; (*b*) an unsatisfactory child–parent relationship in some form; often associated with (*c*) the consciousness of an overconcentration of parental interest upon his performance (the terrible moral burden which parents—particularly those from the lower walks of the scholastic profession—tend to impose); and (*d*) infantilism, often associated with only children and

this kind of family constellation; the determined and possessive mother, a sheltered existence—the pattern so familiar to psychiatrists.

With regard to this last, I see no evidence that homosexuality leads to these breakdowns.

We can best show the contrast if we think of the opposing types: (*a*) men to whom the result does not matter greatly, and who can look back on "compensating" activities at the university; (*b*) men who regard examinations as a battle of wits with the examiners: often with a commendable mixture of excitement, cynicism, and gaiety; and (*c*) the real scholar who does, I am convinced, find a keen intellectual pleasure in tackling the problems set in the papers and in presenting his knowledge in an ordered pattern. All these classes are at their best (as is any athlete) when they are "keyed up" in the right way—that is, in a state of excitement which may be likened to a coiled spring of mental energy. Incidentally, I have some suspicion that the "breakdown" case is often that of a *made* as opposed to a natural scholar; a man whose interests, consciously or unconsciously, have been forced into a particular channel. The breakdown may well be his psychic revenge.

Possible Remedies

In considering possible remedies I am forced to the following conclusions:

(1) The competitive examination system, seen in conjunction with the changing social structure, has now got such a firm grip on the national life that we can never get rid of it.

(2) We can, however, do something to mitigate its worst aspects by educating both our own men, and those who employ them, to attach a higher value to personality when it comes to questions of employment. But the effective use of personality for this purpose does postulate a fairly extensive individual knowledge by someone qualified to speak authoritatively for the man.

(3) In attempting to mitigate the possible evils of the examination system we must not go to the lengths of excluding the potential "breakdown" case, of the type I have described, for he may be a potential genius. "Great wits are sure to madness near allied"; and in this class I would mention—though with the utmost circumspection—mathematicians and musicians. Any method of selection must be sufficiently flexible and thorough to assess the chances of such men, and to accept them as legitimate risks.

(4) Once at the university they must be so handled (again the call for individual attention) that their development may proceed naturally. This development will, in most instances, involve one or more of the following factors: (*a*) a breakaway from the family constellation and its "concentrative" influence; this implies knowledge of the family background by those who teach the man; (*b*) the growth of some philosophy of life which will enable him to see the examination—and other things—in a proper perspective; (*c*) the development of extraversional interests; and (*d*) the inculcation by his teachers of an attitude to the examination; this attitude will have to be developed specifically for each individual (though there will be much common ground) to enable him to minimize the "pressure-aspects" of the event.

Perhaps the problem is really that of diagnosing, at the selection stage, three classes of possible breakdown. There is, as I have said, the potential genius; he must be accepted, but might sometimes be saved if his past case history were known, and if treatment were available and accepted without any stigma attached to it. Then there is the evident neurotic, without any discernible compensatory qualities. If the neurosis is so pronounced as to offer little hope of the normal adjustment by time, I am doubtful whether a student should ever be called on to undergo the strain of university life—a strain which may be rapidly and violently distributed among his teachers and his college. The third class is a borderline one. For my part I should be most reluctant to say that even 30% of adolescents were free from all forms of neurosis at the university age; but I should expect a more or less complete working adjustment three years later. As a tutor I should welcome the possibility of referring a few doubtful cases—perhaps five or six a year—to a competent authority, either at the admission stage or at the end of the first term.

Treatment

Emergency treatment is a difficult problem. One or two consultations for the man suffering from what has been called "tripositis" in the days immediately before the examination are not, in my experience, of much value. The time is far too short for therapeutic action, or even for the collection of essential data; and the resistance will seldom be broken down so quickly. Indeed, it is possible that these preliminaries merely result in an undue measure of concentration upon the man's own weakness, without giving him the opportunity (for his thoughts and energies are elsewhere) to co-operate with the analyst.

Concentrated psychotherapy or analysis after the breakdown has taken place seems to me, on the whole, unsatisfactory; the "hoof-slide has been scarred on the course," though no doubt prolonged and thorough treatment would produce good results. There have been times when I should have welcomed the advice—though not treatment—of a competent psychotherapist as soon as symptoms appeared, though the particular cases I have in mind have pulled through and readjusted themselves. It is a shattering thing to see, as I have seen, a major of a great regiment, with battle experience, weeping quietly in a chair in one's room because he cannot bring himself to go into the examination-room next morning. Yet another pupil, picked up in the small hours of the morning near Bedford on the way to the Welsh hills, where he proposed to become a shepherd (this 10 days before his tripos), achieved his first, did brilliantly in the war, and is now completely stable. The amateur therapy applied in that case is another story.

I will end my paper with a single quotation which I have used for lectures on other subjects—on international politics, and strategy, and other things. It is from Robert Bridges's *Testament of Beauty*, and it seems to me wise:

> Our stability is but balance, and conduct lies
> in masterful administration of the unforeseen.

An ingenious way of demonstrating the presence of A.C.T.H. inside the basophil cells of the anterior pituitary is described in the *Journal of Experimental Medicine* (July). It is a modification already reported of a method of localizing antigen–antibody reactions in tissue sections. Antibody to hog A.C.T.H. was prepared by injecting rabbits after they had been adrenalectomized and then separating the γ_2 globulin fraction of their plasma. To the protein of this fraction the dye fluorescein was linked chemically, so that when its contained antibody combined with antigen the insoluble product would show up in the ultra-violet microscope with a brilliant fluorescence. When freeze-dried sections of pituitary gland were examined after staining in this way the distribution of A.C.T.H. could be seen.

AN EXPERIMENT ON THE TEACHING VALUE OF A SCIENTIFIC FILM

BY

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AND

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Films are being increasingly made and used for teaching purposes. Their power to augment knowledge and stimulate interest is being widely proclaimed in educational literature, in committees and meetings, and in the popular press. The holding of special conferences —the recent Scientific Film Association Conference on medical films, for example—and the setting up of bodies like the British Universities Film Council are further proof of the growing importance attached to teaching films by specialist teachers. It is therefore all the more surprising that the evidence on which all these discussions are based rarely amounts to more than the opinions and impressionistic judgments formed by individuals. Very little exact information is as yet available on the best methods of making scientific films and on the precise effects which the audience may expect from them.

There are at least three kinds of questions which need to be answered:

1. What makes an effective instructional film? What kind of subject-matter lends itself best to film presentation? What is the optimum length of a teaching film? How many facts can be put across in the given time? Should one concentrate on illustrating broad principles or detailed facts? In what form should the subject-matter be presented: by "live" scenes, animated diagrams, simple drawings, or by some combination of the three? Is the cost of elaborate production, the use of technicolour, and of special technical "effects" justified by the resultant increase in teaching power? Which devices aid understanding and memory most? How far must production technique depend on the kind of audience for whom the film is intended? What do audiences themselves like and find easy and interesting to follow—and why?

2. Having made the film, what is the best method of presenting it? Should it be preceded or followed by lectures, accompanied by a spoken or recorded commentary or written explanatory notes, and followed by discussion on some written test? Should the film be shown more than once?

3. Finally, the "perfect" film having been made and presented in the most effective manner, what overall advantages can the student hope to derive from its use? How will it compare with other methods, such as lectures or discussion classes or private reading in the same subject? In other words, is the expenditure of money, time, and trouble involved in teaching by films justified?

The answers to such questions are important both to makers of films and to teachers, and it would be quite easy, with existing techniques of research, to find them. But up to now very little work has been done in this field, especially in this country. Some research has been carried out on simple instructional films for schoolchildren, such as the recent Australian experiment on different methods of presenting the same films (Commonwealth Office of Education, 1950), the investigations of the Scottish Educational Film Association and Scottish Film Council (1947, 1948), and of Philpott (1946), and on Service personnel—for example, Vernon's research (1946) on naval recruits. Very few investigations have dealt with the more specialized films suitable for university students, and hardly any, so far as we are aware, with films intended for medical students.*

The Experiment

Our own experiment was on only a small scale and strictly limited in scope (Lewis and Steinberg, 1951). Its purpose was to assess the teaching value of one particular physiological teaching film to a group of medical students at University College, London, with special attention to: (i) the students' own evaluation of the film, (ii) changes in their factual knowledge following the film, and (iii) specific features of the film which might influence both its teaching efficacy and its appreciation by the students. No attempt was made to compare the film with other methods of teaching or with other films.

The film used was "The Carotid Sinus" made by Schweitzer (1950) at University College and intended to supplement lectures. It is a colour film, very expertly produced by professional personnel supplied by Imperial Chemical Industries, consists mainly of "live" scenes of animal experiments, and also includes some animated diagrams as well as verbal material. The film is accompanied throughout by a commentary written by the author and spoken by a professional commentator, and runs for about 40 minutes. The subjects were 72 members of a class of senior Second M.B. students. All had attended lectures on the circulatory system the previous session.

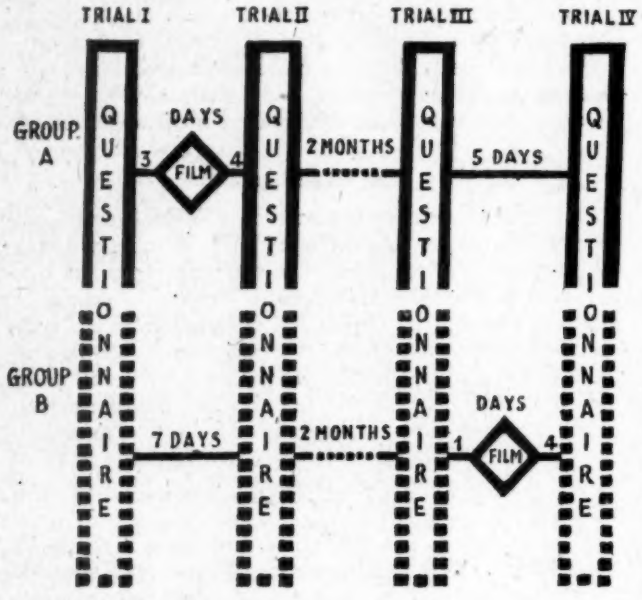
Our main tool of investigation was an objective test in the form of a questionary with "multiple choice" answers, which we constructed to cover the subject-matter of the film. The following question is an example: The carotid body is (*a*) another name for the carotid sinus, or (*b*) a different structure with a different function, or (*c*) part of the carotid sinus, or (*d*) the ganglion of the carotid sinus nerve. The student had to select the correct answer, of which there was only one in each question. One mark was allotted for each correct answer. The questionary contained 45 questions and took about half an hour to complete.

In addition, we constructed a "Film Appraisal Form," somewhat along the lines of that used by the Scientific Film Association, on which the students were asked to assign ratings to various technical and teaching features of the film, such as its general teaching quality, the technical quality of the animated diagrams, and the commentary.

The experiment was fitted into ordinary teaching time, and the film was shown to the students in the course of one of the periods normally set aside for scientific films. No warning was given that questionaries were forthcoming or that an experiment would be carried out, as it was hoped to minimize the effects of any special expectation or attitudes towards the film. All questionaries were filled in anonymously, each student being identified by a serial number only.

Fig. 1 illustrates the plan of the experiment. The class was randomly divided into two equal groups, A and B. First the students' existing knowledge was determined by testing them one day, entirely without warn-

*A useful summary of some relevant researches published and in progress is given in a report prepared by J. Shearman on behalf of the Film Section of the British Transport Commission (1950).



PLAN OF EXPERIMENT

FIG. 1.—The same questionary was used by both groups in all four trials.

ing, by the questionary (Trial I). Three days later half the class (Group A) were shown the film, and immediately afterwards they assessed its technical and teaching qualities on the appraisal form. The other half of the class (Group B) were not shown the film but were told that they would see it later in the term. Meanwhile they served as a control group. Four days after the film had been shown to Group A, the whole class (Groups A and B) was again tested by the same questionary on the carotid sinus (Trial II). After an interval of two months the questionary was given to all students for a third time (Trial III). One day later, Group B was shown the film, with Group A now acting as control group. Finally, four days after the film had been shown to Group B, both groups were again tested by the same questionary for a fourth time (Trial IV).

The purpose of using a control group each time was to eliminate the practice effects of merely repeating the same questionary and of any increase in knowledge resulting from other instruction and reading in physiology in the interim; this was especially necessary, as students could be supposed to be studying hard at that time of year.

Results and Discussion

(i) The results of the subjective appraisal made by Group A immediately after seeing the film were extremely favourable. Most students found all aspects of the technical quality high and the teaching features such as factual content, length, and general presentation of the film clear and interesting; three students spontaneously remarked that the questionary test taken three days earlier had helped them by directing their attention to important points in the film. However, one student, but only one, commented at the end of his appraisal: "An extremely well made film, but spoilt by the constant reminder of the quiz last Tuesday."

(ii) The mean scores obtained in the questionary are shown in Table I. The maximum possible score was 50. Before the film was shown (Trial I), the knowledge of the two groups was practically equal, though the small initial difference between their scores has been taken into account in subsequent calculations. After the film had been shown, the score of Group A increased by 7.20, as compared with only 1.85 for Group B, the control group (Trial II). The difference in mean gain between the two groups (5.35) was tested by Student's t-ratio and found to be highly significant ($t=4.78$, d.f. 70, $P<0.001$). This may be interpreted as a mean increase in knowledge as a result of seeing the film of about 20% of the original mean score. The distribution of the scores of Group A before and after seeing the film is illustrated in Fig. 2. The third testing, after an interval of two months, showed the position to be still practically unchanged. Group A still maintained their gain two months after the film had been shown.

TABLE I.—*Mean Scores on Carotid Sinus Questionary*

	Group A		Group B	
	Mean	No. of Subjects*	Mean	No. of Subjects*
Trial I	28·97	39	26·00	33
	Film			
Trial II	36·18	39	27·85	33
Trial III	36·17	29	29·23	26
			Film	
Trial IV	37·1	20	40·58	19

(Maximum marks = 50)

* The gradual fall in the number of subjects is due to the exclusion of all subsequent results of those who for some reason failed to attend any one of the tests.

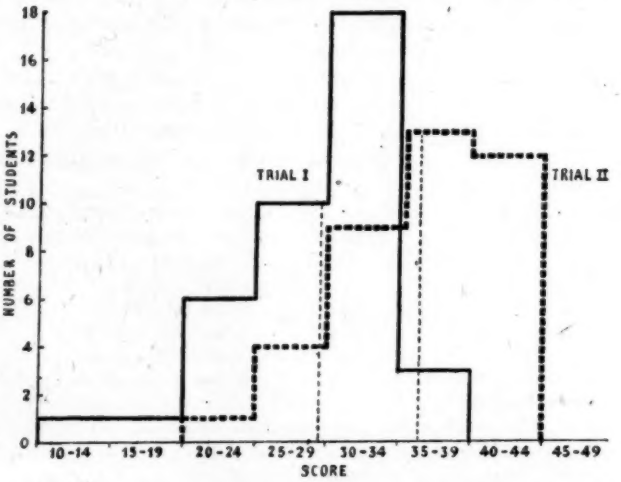


FIG. 2.—Distribution of scores in Group A (39 students) before seeing the film (Trial I) and after seeing the film (Trial II). The faintly dotted lines represent the mean score for each trial.

After the third testing, as will be remembered, the film was shown to Group B, who had not seen it before, but not to Group A. Group B now showed a striking improvement, exceeding their pre-film mean score by 11.35 marks, while Group A, now acting as control group, increased by only 0.93 marks, making a net gain for Group B of 10.42. This difference between the two groups is again statistically highly significant ($t=6.070$, d.f. 37, $P<0.001$).

The final position of the two groups was that Group B, who had seen the film after a series of questionaries which may have acted as preparation and practice, derived even more benefit from the film than Group A, who saw the film after completing only one questionary. The difference in gain as between Test I and Test IV of the two groups (14.58 for Group B minus 8.13 for Group A (i.e., 6.45) is again statistically significant ($t=2.503$,

d.f. 37, $P<0.02$). This suggests that, as one might expect, prolonged previous preparation tends to enhance the effect of a film, though it is doubtful whether the extra time required for such preparation is worth the gain. It is also possible that as a result of the preceding tests Group B expected that another questionary would be forthcoming and watched the film more attentively, or that other extraneous factors over which we had no control, such as private study, were having an increased effect with the greater proximity of examinations.

(iii) Finally, in order to identify possible gaps in the students' knowledge or the efficiency of the film, we carried out a detailed analysis of the answers to individual questions and of the changes they underwent after the film had been shown.

A few questions were so well answered before the film that there was hardly any room for improvement. For instance, all but one student knew before seeing the film that "in the intact animal an increase of pressure in the carotid sinus causes a fall of blood pressure." Other questions were badly answered before the film was presented and showed anything up to 70% improvement after the film. Occasionally a student who had answered a question correctly before would somehow get it wrong after seeing the film. One or two curious mistakes crept into the answers after the film; for instance, one or two students referred to a physiologist named "Shelley," possibly as a result of seeing the names "Bronk and Stella" in one of the scenes of the film.

To find out what level of subject-matter was most sensitive to film influence, we asked three senior physiologists to assign to each of our test questions a mark, α for "very important fact," β for "moderately important fact," γ for "not very important." The α questions involved mainly points of principle, like that noted in the preceding paragraph, while the γ questions were questions about details or about facts peculiar to the film, such as the name of the first physiologist to observe carotid sinus phenomena or the approximate diameter of the carotid sinus nerve in the cat. We compared the mean amount of improvement which occurred for ten questions which were agreed to be α and for ten agreed to be γ.

The results are shown in Table II. The students were found to have had considerably more previous knowledge of α questions—i.e., questions of principle—before the film (presumably derived from lectures and reading) than of the more detailed γ questions. There was therefore less room for improvement in α questions than in γ questions. Of 83 α questions wrongly answered before the film, 33, or 40%, were answered correctly after the film; for γ questions the corresponding figures are 221 and 114—i.e., an improvement of 52%.

TABLE II.—*Improvement of Group A After Seeing the Film*

	10 "α" Questions	10 "γ" Questions
(*a*) Maximum possible No. of correct answers in each trial	390	390
(*b*) No. of answers wrong in Trial I	83	221
(*c*) Answers wrong in Trial I but correct in Trial II	33	114
(*d*) % improvement	39·8	51·6

"α" questions are those rated "very important."
"γ" questions are those rated "not very important."
"% improvement" expresses the number in (*c*) as a percentage of (*b*).

It is obviously impossible to say on the basis of these results what would have happened to the α questions if the students had not answered them so much better before seeing the film than they answered the γ questions. Therefore, in order to answer the question of whether knowledge of principles or knowledge of details was most affected by the film further experiments would have to be carried out, preferably with less-advanced students.

Our pilot study was not intended to provide answers to the many questions raised in the opening paragraphs of this article. It is obvious that much more intensive and extensive research should be carried out. However, the results presented show that in this one particular case, at least, a scientific film did have more than entertainment value; there is no doubt that in our experiment the film contributed appreciably to the knowledge of our group of students. In addition, in the course of the experiment we gained valuable insights into the students' own reactions and specific difficulties. We hope that the work reported will encourage others to carry out much-needed further research into these various aspects of medical and general teaching.

Summary

1. The effect on the knowledge of a class of senior Second M.B. students of a physiological film on the carotid sinus was assessed by means of repeated testing with a questionary constructed for the purpose.

2. Significant increases in knowledge were found after showing the films to two groups of students under slightly different experimental conditions.

3. An analysis of the answers given to individual questions before and after showing the film was carried out.

4. The results of a subjective "appraisal" of the film by the students were overwhelmingly favourable to its technical and teaching qualities.

5. It is hoped that the methods used in this experiment and the results described may interest those who make and use teaching films and will stimulate further research.

We wish to thank Dr. A. Schweitzer, and Professors G. L. Brown and F. R. Winton for their help and encouragement throughout this research, Mr. A. Summerfield for advice on some of the statistical treatment, Mr. R. Marston for assistance with computation, and the students for participating in the experiment.

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A survey of the 1949 incomes of physicians in the United States has been carried out by the A.M.A.'s Bureau of Medical Economic Research and the Office of Business Economics (*J. Amer. med. Ass.*, July 28, p. 1237). More than 55,000 doctors took part; the average net income from medical practice of the 30,000 doctors whose returned questionaries have already been analysed is $11,058 (approximately £3,900). The average earnings of physicians are above those of lawyers. The survey shows that the highest incomes are not being earned by doctors in the large metropolitan areas, and demonstrates also that there was no nation-wide shortage of physicians in 1949—had there been, the average income of doctors would have been much higher. There appear to be great economic advantages in practising medicine in smaller cities.

THE FUTURE OF THE M.D. AND Ch.M.

BY

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Many universities have recently revised their regulations for the degrees of Doctor of Medicine and Master of Surgery. Some of the changes are routine amendments involving no change in policy, others reflect a new conception of the function of these degrees. At present both the M.D. and Ch.M. are obtainable wholly or partly by examination in some universities, but the opinion that they should be exclusively "thesis" degrees is gaining ground. There is also a growing conviction that candidates should be practitioners of considerable experience, and several universities now require them to be M.B.s of at least five years' standing. The influence of these views is evident in the new regulations of nearly half the faculties, and further changes in both old and new regulations seem likely in the near future; for these reasons it may be useful to summarize the requirements for the M.D. and Ch.M. and the more important recent changes in the regulations.

Requirements for the M.D. and Ch.M.

Table I shows that both degrees are obtainable by examination, by examination with thesis, or by thesis, but procedure by thesis is allowed for the M.D. much oftener than for the Ch.M. Of the ten universities granting the M.D. by thesis, six allow no alternative method of procedure, and of the four granting the Ch.M. by thesis, three allow no alternative. Table II shows that both M.D. and Ch.M. candidates have to be M.B.s of one to five years' standing, the usual periods being two years for the M.D. and two and five years for the Ch.M.

TABLE I.—*Methods of Obtaining the M.D. and Ch.M.*

University	M.D.			Ch.M.		
	Examination	Examination with Thesis	Thesis	Examination	Examination with Thesis	Thesis
Aberdeen		+			+	
Belfast	+		+	+		+
Birmingham			+			+
Bristol	+		+		+	
Cambridge			+	+		
Dublin			+	+		
Durham		+		+		
Edinburgh			+		+	
Glasgow		+			+	
Ireland	+	+	+	+		
Leeds		+				+
Liverpool	+		+		+	
London		+*			+*	
Manchester			+	+		
Oxford			+		+†	
St. Andrews		+			+	
Sheffield	+	+		+		
Wales		+				+
Total	5	9	10	7	8	4

* From July, 1953. † From October 1, 1951.

TABLE II.—*Years That Must Elapse Between M.B. and Higher Degrees*

University	M.D.	Ch.M.	University	M.D.	Ch.M.
Aberdeen	1	1	Ireland	2	2
Belfast	2	2	Leeds	3	5
Birmingham	5	5	Liverpool	2	2
Bristol	2	2	London	5†	5†
Cambridge	—*	2	Manchester	2	5
Dublin	—*	3	Oxford	—*	5‡
Durham	2	2	St. Andrews	1	1
Edinburgh	2	5	Sheffield	2	3
Glasgow	1	1	Wales	2	3

* The standing required is not reckoned from the M.B. † From July, 1953. ‡ From October 1, 1951.

The position shown in Tables I and II is the result of extensive recent changes, and these are summarized below.

New Regulations for the M.D.

Birmingham.—The regulations were revised in 1950 and the new regulations are now in force. The minimum time interval between M.B. and M.D. is increased from two years to five, and the standard of the work expected has been raised. Formerly the candidate had to "present a thesis based either on original research or on the application of scientific method to medicine"; the new requirement is "published work and/or a thesis . . . which must be a substantial contribution to medical knowledge and must contain original work worthy of publication." Under the old regulations the candidate had to pass an examination "appropriate to the subject matter of the thesis" unless exempted for having presented a thesis "of sufficient merit"; under the new regulations this routine examination is abolished, although "a candidate may be required to submit himself for an oral examination."

Edinburgh.—The new regulations are now in force. The minimum time interval between M.B. and M.D. is increased from one year to two years. The old requirement was examination with thesis; the examination was in clinical medicine, with or without a special subject, and exemption from the examination (or part of it) was granted only "in special circumstances" and if the thesis was "of exceptional merit." The new regulations require a thesis only, although the candidate may be examined in the branch of medicine "in which the subject of the thesis falls."

London.—New regulations taking effect in July, 1953, divide the "examination" into two parts. Part I, open to M.B.s of two years' standing, consists of papers on medicine and pathology, an essay, a clinical examination, and an oral examination. Part II, open to M.B.s of five years' standing, consists of a thesis "dealing with general medicine or with some special branch of medicine and an oral examination on general medicine and on the special subject dealt with in the thesis." Candidates who have held appointments for two years at recognized institutions—hospitals or medical schools, in London or elsewhere—may be exempted from Part I, and the oral examination in Part II is at the discretion of the examiners.

New Regulations for the Ch.M.

Birmingham.—Requirements for the M.D. and Ch.M. are stated in a single set of regulations; this is true of both the old and the new regulations; the changes described above for the M.D. therefore apply equally to the Ch.M.

Cambridge.—New regulations now in force require candidates to answer a question on "a more specialized branch of surgery" (in addition to questions on general surgery), but no special branches are named. According to new regulation 76 "candidates shall be invited to submit to the examiners a record of postgraduate appointments . . . and a list of titles of published work. . . ."

Edinburgh.—The minimum time interval between M.B. and Ch.M. is increased from one year to five years.

Leeds.—By new regulations now in force the time interval between M.B. and Ch.M. is increased from two years to five. The degree was formerly obtainable only by examination; it can now be obtained only by thesis. A candidate must engage in advanced study and research for two years (one of which may be part-time) and "will be allowed to undertake only a limited amount of outside work." The thesis must contain "work worthy of publication"; an oral examination is required "on matters relevant to" the thesis, and a written examination may also be required.

London.—New regulations taking effect in July, 1953, are virtually identical in form with the new regulations for the M.D. described above. The M.S. "examination" is divided into two parts. Part I, open to M.B.s of two years' standing, consists of papers on surgery with surgical pathology, and on surgical anatomy with applied physiology, an essay, a clinical examination, an examination in "methods of surgical approach and the conduct of operations," and an oral examination. Part II, open to M.B.s of five years' standing, consists of a thesis "dealing with general surgery or with some special branch of surgery and an oral examination on general surgery and on the special subject dealt with in the thesis." Every candidate is also required to submit a record of his surgical experience. Exemptions from Part I and from the oral examination in Part II may be granted for the same reason as the corresponding M.D. exemptions.

Manchester.—The minimum time interval between M.B. and Ch.M. is increased from one year to five years.

Oxford.—Under the old regulations the M.Ch. is obtainable only by examination; new regulations taking effect on October 1, 1951, require both examination and a thesis. Part I (the examination) may be taken in the seventh term from the B.M., Part II (thesis and oral examination) in the 16th term from the B.M. According to the Oxford rules there are three terms to a year; candidates will thus be eligible for the M.Ch. in their sixth year after taking the B.M. The object of the oral examination in Part II is "to test the candidate's general competence in his own field," and one of the duties of the examiners is "to examine the candidate orally in the branch of surgery in which he has specialized. . . ."

Wales.—New regulations now in force require candidates to be M.B.s of three (previously two) years' standing, and the former requirement of examination is dropped, a thesis alone being required. There is "an oral or other examination on the subject-matter" of the thesis; exemption from this examination may be granted "in exceptional circumstances."

Discussion of the New Regulations

As compared with the old regulations, the new attach more importance to research and less to the passing of examinations as qualifications for the M.D. and Ch.M. They also require candidates to be practitioners of considerably greater experience and in at least one case fix a higher standard for the research. Another interesting feature of the new regulations is their tendency to prescribe the same formal requirements for both the M.D. and Ch.M., thus removing any difference in status or function between these two degrees.

The extent to which these policies have found expression in the new regulations varies widely. So far as the recognition of research is concerned, the extremes are illustrated by the Cambridge M.Chir. and the Leeds Ch.M., both of which were formerly examination degrees. While Cambridge is now willing to take published work into account, the M.Chir. remains essentially a degree by examination; Leeds, on the other hand, has converted its Ch.M. into a research degree awarded on conditions that make it equivalent to a Ph.D. in surgery. Four of the universities that have revised their regulations have made research the sole avenue to the M.D. or Ch.M.: Birmingham (M.D. and Ch.M.), Edinburgh (M.D.), Leeds (Ch.M.), and Wales (M.Ch.). London and Oxford have been more conservative. Under the old regulations the essential requirement for the London M.D. and M.S. is examination, a thesis being optional; under the new regulations the essential requirement will be a thesis, although examination will still be required as a rule. Oxford has not gone quite so far; although a thesis will be required for the M.Ch., there is no provision for exempting any candidate from the examination.

The only example of the direct conversion of an examination degree into a thesis degree is the Leeds Ch.M.; in all other cases the change has been less radical and is of two types: (1) addition of a thesis to the requirements for an examination degree (exemplified by the London M.D. and M.S. and the Oxford M.Ch.); and (2) abolition of the examination from the requirements for a degree by examination with thesis (exemplified by the Birmingham M.D. and Ch.M., the Edinburgh M.D., and the Welsh M.Ch.).

There is some variation in the increased periods that must elapse between the M.B. and the M.D. or Ch.M., but the outstanding fact is that in eight of the ten instances in which a change has been made the new period is five years.

The universities that have revised their regulations differ widely on the question of the equivalence of the M.D. and Ch.M. Even before the revision, Birmingham regarded the M.D. and Ch.M. as having the same status and function, the only difference between them being one of subject-matter. London, though retaining separate regulations for the M.D. and M.S., also regards these two degrees as of the same status; this is even clearer from the new regulations than from the old, and the recent changes in the requirements—including the much greater emphasis on the thesis—are the same for both degrees. In contrast, other universities retain different policies for the M.D. and Ch.M.; at Cambridge, Edinburgh, and Oxford, for example, the M.D. is a thesis degree, but the Ch.M. is still partly or wholly an examination degree. Leeds and Wales provide the only examples of the opposite policy; the Ch.M. is a thesis degree, but examination as well as a thesis is required for the M.D. Such differences suggest that the two degrees are administered by independent committees; the modern tendency, seen in Birmingham and London, is to legislate for both degrees simultaneously and to reduce any difference between them to that of subject-matter.

The general conclusions to be drawn from the recent changes are that a new policy—the same for both degrees—is emerging, at different speeds in different universities, and that further changes in both old and new regulations are probable in the near future; the

new regulations suggest that in due course both the M.D. and Ch.M. will be exclusively thesis degrees open only to M.B.s of at least five years' standing.

M.D. and Ch.M. Examinations

The M.D. and Ch.M. by examination are declining in importance; this is clear from the recent changes in the regulations. As a result of these changes, only five universities will grant the M.D. by examination, and four of them give the candidate the option of proceeding by thesis; only seven universities will grant the Ch.M. by examination, and one of them allows procedure by thesis as an alternative (Table I).

The main reason why procedure by examination is being abolished is probably a growing belief that higher degrees should be awarded only to those who have made some contribution to knowledge. Another reason is that the M.D. and Ch.M. by examination are superfluous in view of the existence of the M.R.C.P., F.R.C.S., and similar higher diplomas. To be acceptable alternatives to these diplomas, the degrees would have to be standardized—by the universities or an external authority—in the same way as the M.B. and Ch.B., but the result would be a needless duplication. It would not be desirable to convert the degrees into more advanced qualifications than the higher diplomas; the M.R.C.P. and F.R.C.S. should mark the end of examinations and leave the practitioner free to develop his interests in his own way; his professional attainments a few years later could, if necessary, be assessed better by inquiry and interview than by formal examination—in other words, the procedure of a selection committee could be followed.

Procedure by "examination with thesis" is open to criticism on several grounds. A purely practical objection is the variety of forms that the procedure may take. Sometimes the examination and thesis are independent tests, excellence in one not being allowed to compensate for deficiency in the other. Sometimes the tests are linked: success in the examination may be allowed to compensate for an unsatisfactory thesis; or the candidate may have to pass the examination before being allowed to submit a thesis, or may have to submit a satisfactory thesis before being allowed to take the examination. A degree by "examination with thesis" thus has no generally accepted meaning—a disadvantage to the holder and a nuisance to anyone who may have reason to be interested in the graduate's qualifications.

When the thesis and the examination are independent the requirement is excessive—a good thesis is all that can reasonably be expected for a medical higher degree. If the thesis is satisfactory, subsequent examination is unnecessary; if the thesis is not satisfactory, the candidate should be rejected—and not allowed to compensate for it by passing an examination. "Examination before thesis" is irrelevant; the ability to pass examinations has no bearing on research capacity, and all the necessary evidence on the candidate's knowledge can be found in the thesis itself. There is no need to make candidates take an examination simply because they have not worked in approved places. Examinations of this type are presumably intended to protect referees from manifestly incompetent theses, but the necessary protection can be given by a committee that scrutinizes all theses as soon as they are submitted to the university.

Perhaps the strongest argument against examinations is the fact that two-thirds of the medical faculties now accept a thesis as sufficient in itself for a higher degree, and procedure by "examination with thesis" may well prove to be no more than a transitional stage in the conversion of the M.D. and Ch.M. from examination degrees into degrees by thesis. An oral examination on the thesis is sometimes useful, but experience has shown that it is rarely needed.

The M.D. and Ch.M. as Thesis Degrees

The testing of competence achieved after entry into a profession can be safely left to professional institutions, which—as national bodies—are better fitted for this work than universities; the encouragement of research, on the other hand, is a special function of universities, which have resources and experience that no professional body can match. The most appropriate ground for awarding a higher degree is therefore a contribution to knowledge, and in any case every graduate should have the right to proceed to the higher degrees in his own faculty by research alone. The conversion of the M.D. and Ch.M. into thesis degrees will give M.B.s the opportunities enjoyed by B.Sc.s, who can proceed to any higher degree in science unimpeded by tests of professional competence.

The circumstances of doctors and scientists are entirely different, and degree requirements should be adapted to the candidate's occupation. An M.B. should be free—as he usually is now—to do his thesis work when and where he pleases; he should be allowed to decide for himself whether to do it full time or part time, and whether to arrange for supervision or not. It would be unwise for universities to require full-time work for the M.D. or Ch.M.; this would not only close the degrees to some of the ablest M.B.s (for economic reasons) but would also cut off candidates from practice—and practice is desirable both for maintaining professional skill and for obtaining ideas and material for research. Regulations suitable for Ph.D. candidates, requiring full-time or substantial part-time attendance at approved places, are ill suited to M.D. and Ch.M. candidates; part-time research, moreover, need not be inferior in quality to full-time; university teachers, who do much of the world's research, have to do it in the time left after the performance of many other duties.

The pass standard for the M.D. and Ch.M. should be one attainable by an intelligent and experienced M.B. engaged in practice who devotes all his spare time to the thesis for two years, and theses of special merit should receive (as they usually do now) marks of distinction.

An acceptable thesis will probably contain work worth publishing in a medical journal. Some universities require the thesis to be submitted in a form suitable for publication—a requirement that overlooks the fundamentally different objects of a thesis and a paper. A thesis must contain not only a record of work done by the candidate, but also a substantial review of the literature to put the work in its historical setting, and a detailed justification of the methods used—in other words, a thesis must be a demonstration of competence and an anticipation of criticisms. No journal could find room for such a work; much that is indispensable in a thesis is irrelevant in a paper, which should be a record of new facts or opinions with a minimum of historical data. Conversely, the very virtues of a paper

make it an unsatisfactory substitute for a thesis; a candidate seeking a degree on work that has already been published should present it in the more extended form of a specially written thesis (with reprints as an appendix); if there are many papers the thesis should be a detailed summary of them, showing the origin of the work, the relation of the various papers to each other, and the value of the work as a guide to future research. An examiner confronted with a mass of reprints is entitled to such co-operation on the part of the candidate, and a decision may be impracticable until an explanatory thesis has been supplied.

Period between M.B. and M.D. or Ch.M.

The period that must elapse between first and higher degrees is of practical importance, affecting both the general quality of the theses and the status of the higher degrees. Most of the medical faculties that have recently changed this period now require an interval of at least five years between graduation as M.B. and as M.D. or Ch.M.; it is therefore desirable to consider the probable effect of this new requirement.

At first sight five years seems a very long minimum interval between M.B. and M.D. or Ch.M. Certainly the M.D. has been obtained in much less time, and with theses of the best quality; it could therefore be argued that a five-year minimum is excessive and that it will impose needless delay on able candidates. On the other hand, the new period has several advantages over the customary one or two years. An able candidate, knowing that there is nothing to be gained by the speedy completion of a thesis, may spend more time perfecting it, or carry his research further before writing up the results. Five years will allow ability to be tempered by experience, and through starting his research later the candidate will be in a better position to choose his own subject and make his own plans. The work done is more likely to be worth publishing, even though the total time spent on it may be no greater than it would have been with a shorter minimum, for greater general experience will make possible quicker and more efficient work.

The general adoption of the five-year minimum would substantially improve the status of the M.D. and Ch.M. The average level of M.D. work has probably been roughly equal to that of work for the M.Sc.; with a five-year minimum M.D. theses should reach the Ph.D. standard more regularly than they do now, the M.D. thus becoming a doctorate in fact as well as in name. The Ch.M. calls for special discussion in view of the growing tendency to make the requirements equivalent to those for the M.D.

Traditionally the Ch.M. is an examination degree—a technical qualification of high standing, but one giving little or no encouragement to surgical research. The prestige and professional value of the F.R.C.S. make the traditional Ch.M. superfluous; on the other hand, contributors to surgery lack appropriate academic recognition. This could be granted either by accepting surgical theses for the M.D. (as in Manchester) or by replacing the Ch.M. by a doctorate in surgery. The acceptance of surgical theses for the M.D. could easily be a first step towards the abolition of degrees in surgery, which would then be regarded from the academic standpoint as simply one of the many branches of medicine; on the other hand, the modern achievements of surgery —and its great promise—call for the maintenance of separate degrees. It seems probable that a thesis after five years' experience will become the standard requirement for the Ch.M., as well as for the M.D.; such a requirement is more severe than is usual for university masterships, and a more appropriate award would be a doctorate.

The degree of Doctor of Surgery is already obtainable (in addition to the M.S.) in the University of Durham, but the regulations are of the Ph.D. type, requiring substantial periods of attendance at approved places. Objections to the Ph.D plan from the standpoint of a medical man in practice have been stated above, and the suggestion made here is that the degree of Doctor of Surgery should replace the Ch.M. in all medical faculties, being granted on the same terms as the M.D., but for a thesis on a surgical subject or on a topic relevant to surgery.

Need of a Conference

It would be helpful if the universities could agree on a common policy for the M.D. and Ch.M. This is desirable first and foremost in the interests of candidates, who should not be under any disability through having graduated at a particular university. The existence of such disabilities at present is obvious: while most faculties grant the M.D. for a thesis, a minority require the passing of examinations in addition; most faculties likewise award distinctions for theses of special merit, the remainder recognizing only one grade of pass. A common policy would also be to the interest of the faculties, which increasingly desire a distinctive function for their higher degrees among the various higher medical qualifications, and one moreover in line with the usage of the non-medical faculties.

The new regulations reviewed above indicate the probable direction of future changes, and their harmony suggests that the faculties could reach agreement without difficulty. It would therefore be an advantage if representatives of all the medical faculties met in conference to consider the requirements for their higher degrees. Such a conference would place wide experience at the disposal of all the faculties and minimize the inquiries that each faculty has to make of others when revising its regulations. A precedent exists in the conference that resulted in the institution of the Ph.D. Agreement was reached on the requirements for this degree and—after over thirty years—they remain essentially unchanged, though the individual universities have rightly taken their own line in matters of detail. A conference on the higher medical degrees should be equally successful, both in reaching agreement on principles and in leaving unimpaired the independence of the individual faculties.

Summary

The requirements for the M.D. and Ch.M. are summarized and the more important changes in the regulations are described and discussed.

The main changes are: (1) the conversion of both the M.D. and Ch.M. into "thesis" degrees by the abolition of examinations; and (2) an increase in the period that must elapse between M.B. and M.D. or Ch.M. to five years.

The changes bring the requirements for the M.D. and Ch.M. into line with those for other higher degrees, differentiating the M.D. and Ch.M. from the M.R.C.P. and F.R.C.S. and substantially improving their status.

The new requirements for the Ch.M. are more severe than is usual for university masterships, and a more appropriate award would be the degree of Doctor of Surgery.

A common policy for the higher medical degrees is desirable in the interest both of candidates and of the medical faculties. A conference of representatives of all the medical faculties on requirements for their higher degrees would be helpful.

I am indebted to many university officials for information and to Professor S. L. Baker for reading the manuscript.

PUBLIC HEALTH ENGINEERING

BY

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"Who would not give a trifle to prevent
What he would give a thousand worlds to cure?"
YOUNG.

Instruction in public health engineering is now being given at the London School of Hygiene and Tropical Medicine and the Civil Engineering Department of the City and Guilds College, with the help of the Imperial College of Science. The training courses are intended for postgraduate engineers, and last for one academic year. An advisory committee supervises the courses, and instruction is given by members of the academic staff of the London School of Hygiene and Tropical Medicine and of the Imperial College.

The term "public health engineering" will convey little to many persons in this country at the present time. In America it is often used as a synonym for sanitary engineering, but in Britain this term is used in a much more restricted sense and is confined usually to the domestic aspects of water supply and sewage disposal. Therefore the title "public health engineering" has been adopted for the new courses as giving the best indication of the wide range of activities of engineers concerned with the protection of public health and the prevention of disease.

"Environmental sanitation" is another term which has been used to define the work of the doctor, the engineer, and others in this field. A committee of the World Health Organization gave the following definition: "The control of all those factors in man's physical environment which exercise or may exercise a deleterious effect on his physical development, health, and survival." "Environmental" in this connexion must often be interpreted very widely—in terms of whole countries or regions and not merely of houses, villages, or cities.

The study and practice of preventive medicine and the promotion and maintenance of good health in any population are dependent upon the investigation and appreciation of *all* conditions bearing upon man in *all* his activities. Such terms as "social medicine," "environmental hygiene," and "human oecology" have become familiar. The realization is growing that the control of such environmental factors and the improvement of conditions adverse to good health in communities should be in the hands of teams of workers comprising doctors, engineers, architects, and others interested.

Aims of the Course

The teaching of public health engineering is best organized as a joint venture between university schools of public health and engineering schools. It is realized that the members of a health team should consist not only of doctors and engineers but also of other persons whose work affects the environmental conditions of communities. The course provides training in this team work, and the contributions of members of such a team to the attainment of the final objective will be all the more valuable if each member has a basic knowledge of the work of other members.

To give an example: the promotion of health, safety, and welfare among the workers in an industrial plant is not dependent upon any one individual person or department in that plant. The successful promotion depends upon effective co-operation between the medical officer, the works engineer, the personnel director, the welfare officer, and the safety officer. Another well-known example of the effectiveness of such team work has been seen in the work of the Tennessee Valley Authority. An excellent description of this project has been given by David Lilienthal in his book *T.V.A.*

The London course is intended to establish intimate contact between engineers and doctors, and to enable them to appreciate each other's outlook and to approach their common problems with a unified aim. During its planning and early stages many eminent engineers and medical men gave information and encouragement. It is hoped that in the future the course and others like it will play an important part in intensifying public consciousness of problems associated with the maintenance of health and in raising environmental standards not only in this country but also in other parts of the world.

Subjects Studied

The relevant studies fall naturally into three groups:

(*a*) The basic sciences of mathematics, physics, chemistry, mechanics, hydraulics, bacteriology, entomology, and parasitology. Since the course is of postgraduate standard, a sufficient knowledge of the physical sciences is assumed, and attention will be given to the special applications of these in the field of sanitation, and to the biological sciences, which will be new to most students. Adequate time must be devoted to the latter subjects, since considerable mental adjustment is required in approaching the study of living things, as contrasted with constructional materials, and this cannot be hurried.

(*b*) The different fields of application, such as water supply, sewage disposal, housing, industrial hygiene, and insect and rodent control.

(*c*) The general public health background, against which these studies may be seen in a true perspective. This involves instruction in the organization of public health services, and the epidemiological study of the spread and control of disease in general. This work, which will be undertaken at the London School of Hygiene and Tropical Medicine, will bring the engineers in contact with doctors studying for the Diploma in Public Health, and should foster a useful interchange of ideas and outlooks.

A national league has been formed in Sweden for the campaign against cancer. The new association will have low membership fees, and aims at covering a large proportion of the population. Its main objective will be to support scientific research into cancer, which annually causes the death of 12,000 people in Sweden.

STUDENT HEALTH

A discussion on student health, arranged by the Section of Physiology, was held at the British Association meeting in Edinburgh on August 15. Professor David Whitbridge presided. Representatives of the Sections of Education and Psychology also attended the meeting. The opening speaker was Sir Andrew Davidson, Chief Medical Officer, Department of Health for Scotland.

No better or more appropriate recognition of the importance of student health, said Sir ANDREW DAVIDSON, had been recorded than its inclusion in this year's discussions of the British Association. In whatever way we in this country sought to explain previous neglect of student health, there was now a widespread appreciation of its purpose and of its value to the nation. To the needs of no other group could the World Health Organization's definition of health apply better than to students—"A state of complete physical, mental, and social well-being." That should be the objective of a student health service. The stresses and strains, both physical and mental, experienced by these young people demanded special understanding and treatment, not only in the sense of cure of any current disability, but more in the prevention of any such accident. The approach should be through physiology in preference to pathology.

Responsibility of the Universities

In Scotland some 31,000 students were involved, of whom about 17,000 were attending universities and other colleges under the aegis of the University Grants Committee. Until recently the view had prevailed that the health of students was no concern of a university: nowadays less was being heard of that view. Although the universities had shown the way, much leeway had to be made up in other institutions of higher education. The report of the Goodenough Committee had given a substantial fillip to such services by stating unequivocally that a university had a definite responsibility to provide a properly organized student health service, quite apart from any National Health Service. A fair start in this way had been made in all four Scottish universities. These services were relatively young, and the most compelling need was to define the lines along which further development should take place.

Future Development of Health Services

His personal view was that a student health service in Britain should extract what was best and most suitable from our school health services and our industrial health service—the personal health and health education work of the former and the environmental effort of the latter. Infant welfare, followed by the school health service and later by the industrial health service, seemed a natural sequence; the third stage should surely not be denied to the increasing body of students to whom we looked to supply our future leaders. Moreover, the cost of higher education was high and was provided largely by Government funds. From an economic standpoint, therefore, it was a matter of national importance to ensure the health and welfare of the beneficiaries of these funds—if possible, through prevention.

Sir Andrew referred also to the opportunity for research in health offered by such a student health service. The careful and exhaustive routine medical histories, with the results of examination, should in themselves provide a mine of useful information when subjected to analysis. There was an almost unexplored field of investigation of a group living through one of life's more critical ages.

Improved Methods of Testing Vision

Dr. R. H. BOLTON, of Birmingham University, then gave an account of his experiences in the eye-testing of students, especially with the "Turville infinity balance" technique. He had used this test individually on students for six years, and for the last three years as a method of overhaul by which a hundred students could be screened in a morning. Many minor improvements had been, and were being, introduced into this simple apparatus which enabled the refraction of both eyes to be checked simultaneously by the use of a septum on a mirror which occluded half the line of type for each eye. It was particularly useful for people whose refraction was asymmetrical, and allowed a very exact prescription to be made, particularly with intelligent students. The technique had also been adapted for use instead of the monocular Snellen type for routine screen testing, and had the advantage of picking out those who habitually suppressed one eye. These methods had proved useful on some 4,000 students, and, while no claim was made for infallibility, they were an improvement on other published screen tests such as the Massachusetts vision test. This used a Maddox rod method of assessing distance phorias, and, while giving an indication of gross phorias, was not really reliable on the much more significant minor degrees. In Dr. Bolton's experience up to two prisms of exophoria was at least as common as orthophoria.

Academic Success and Environmental Factors

Dr. J. G. THOMSON, of the Department of Social Medicine at Edinburgh, gave an account of his investigations into the relationship of various factors in the physical and environmental background of the medical student to his academic achievement. He showed that, on the basis of the Registrar-General's division into five "social classes," medicals were drawn more largely from the first two than students of other faculties. In an analysis of the examination results of some 600 medical students he had found no significant differences in performance between the "social classes," nor between students from different-sized family groups within these classes. In an analysis based on age at entrance to the University, the best performances had been from those who entered the Faculty between the ages of 26 and 30, and the poorest from those between 20 and 22, the age at which National Servicemen usually entered. Most environmental factors had no detectable correlation with academic performance, and this was true also of most health factors, except that there was a tendency for sufferers from myopia to score higher marks. No correlation had been found between height, physique, or the amount of physical exercise indulged in and academic performance.

In first-year students there was a much greater scatter of their examination marks, which made analysis easier. In a group of 137, it appeared that students living in approved lodgings did better than those living in university halls, and much better than those living at home. A group of 33 schooled in England earned 59.3% of the available marks, while the corresponding 78 Scots earned only 48.5%. Pupils from the public schools did not earn as high marks as those from secondary and high schools.

The Importance of Physique

Dr. R. W. PARNELL, of Oxford University, discussed the relationship between physique and both physical attainments and behaviour, illustrating his address with a fascinating series of slides. The first of these established that the undergraduate exceeded the level of the general community in height and weight, the second that a combination of lightness of body-build with minimal fat but adequate weight of musculature, long legs, and a large heart were important for long-distance runners (see *British Medical Journal*, 1951, **1**, 1292). Where games were voluntary and facilities good, there was a close correlation between indulgence in exercise and physique. Men of light build, especially those with more than average fat in relation to their weight, took very little strenuous exercise.

There was a significant tendency for stocky young men to smoke more than lean men. The fatter young men were, the more often did they partake of alcohol, while total abstainers were most often found among those of light build. Indigestion was commonest in lean men of dominantly muscular build; very lanky and very fat young men were rarely dyspeptics. Cancer of the breast was remarkably localized

in its incidence to a physique between the endomorphic and mesomorphic. In interviewing students, signs of nervous tension were commonest in the lean and muscular, which might help to explain why some subjects shine more highly in oral examinations than others. In an attempt to relate physique to behaviour, women undergraduates had been compared with women trainees at Borstal. This suggested a potential "mountain of delinquency" in the fat-muscular group of the population, a conclusion in agreement with recent observations on males in the United States reported by Sheldon and the Gluecks. In conclusion Dr. Parnell said: "There appears to be an important relationship between physique and behaviour. This has long been recognized, but has recently received special impetus by newer methods of recording physique, in particular by standard photography, which Dr. Tanner, of St. Thomas's Hospital, has done much to further in this country."

Tuberculosis Among Students

Sir ALAN ROOK, head of the student health service of the University of Cambridge, limited his contribution to the problems of tuberculosis, *the* maiming and killing disease of the young adult. He stressed the desirability of *x*-ray examination not only on admission but for all students each academic year, and animadverted on the futility of regarding such an examination as "not worth while" or "interference with the liberty of the subject." Though "youth is an age that knows little and cares less about illness," it took the news of tuberculous infection, involving an average loss of two years in a university career, very badly, and the breaking of such news was one of the greatest difficulties laid on the university doctor.

Sir Alan thought Malleson's estimate of 330 British students in sanatoria too low. On the basis of the Cambridge experience he believed 500 to be a better estimate, with 2,000 others under treatment or observation. The student's later problem, "What is to happen to me?" was one for both doctor and tutor. A sheltered life was needed; thus the medical should not aspire to a strenuous general practice, nor to surgery, nor to work in the Tropics. If he aimed at teaching, special precautions against the risk of infecting others were necessary. A special difficulty with tuberculosis was the effect of the disease on the patient's mental outlook. Simple occupational therapy was rarely found satisfying by students, and doing nothing for months often developed a psychological maladjustment bad for both the patient and the treatment of his disease. "Surgeons tell us," he said, "that bones are not filled with marrow but with ingratitude, and in some cases I wonder if the reaction around the tubercle bacillus is not made up of resentment, so profound a grudge does the patient come to bear against society."

Britain lagged behind most European countries in meeting the needs of the tuberculous student. In France there were post-cure hostels where the convalescent could pick up the threads of his studies under suitable direction—lectures were relayed by telephone and library, and even laboratory facilities were available. Preferential treatment of this kind for the student was perhaps comparable to what was done for miners and members of the Services. The numerous difficulties of making such provision were manifest, but any help against the disaster of pulmonary tuberculosis in a student was well worth while.

There are 79 medical schools in America, and of recent years they have been feeling the pinch of financial stringency, with rising costs, reduced income from endowments, and fewer large individual donations than formerly. It seemed likely that they would have to apply for Government aid to keep going, and, to avoid this intrusion of the State into American medical education, leaders in industry, education, agriculture, labour, and medicine two years ago formed the National Fund for Medical Education. According to an editorial in the *Journal of the American Medical Association*, July 28, p. 1236, this fund has for the first time just distributed grants totalling $1,132,500 (about £400,000).

THE ENROLMENT IN MEDICINE

The total number of names in the current *Medical Register* is 80,222, which is higher by some 7,000 than the average for the last 10 years. Of these registrations, 38,850 were in England and Wales; 21,145 in Scotland; 11,160 in Ireland; 7,064 were on the Commonwealth list, and 2,003 on the Foreign list. The following table gives the position of the *Register* at the end of each of the last 10 years:

Year	Registration	Added by Restoration	Death or Removal	Total
1941	3,296	16	996	66,992
1942	3,556	7	1,127	69,428
1943	3,532	13	1,091	71,882
1944	2,971	11	1,218	73,646
1945	2,666	11	1,190	75,133
1946	2,237	14	1,092	76,292
1947	2,787	10	1,160	77,929
1948	3,968	16	4,467	76,292
1949	3,109	19	1,280	78,140
1950	3,160	45	1,123	80,222

The unusual figures for 1948 were due to removals from the temporary list following the passage of the Medical Practitioners and Pharmacists Act of the previous year, and the transference of many of the names to the permanent list. The temporary list has now disappeared.

The increase in the number on the *Register* over the last 70 years has been more than threefold. The number in 1881 was 23,800, and even 50 years ago it was only 37,912, less than half what it is at present. The increase during the last 20 years has been almost as great as during the previous 40.

The Student Entry

The number of medical students admitted to the schools of Great Britain and Ireland during the academic year 1950–1 was approximately 2,725. The student admissions during the previous eight years have been:

1942–3	2,468	1946–7	2,533
1943–4	2,426	1947–8	2,797
1944–5	2,612	1948–9	2,653
1945–6	2,610	1949–50	2,734

In the early years of this century, up to the time of the first world war, the annual entry was about 1,400.

The task of training medical students is shared between the teaching hospitals and the universities. In London the 12 undergraduate teaching hospitals, each with its group of satellite institutions, have been designated teaching centres, as have the 10 teaching-hospital centres in association with the universities in England and Wales outside London. In Scotland, hospitals are not designated as teaching hospitals; all of them come under the jurisdiction of the five regional hospital boards, but provision is made for inclusion on the boards of management of nominees of the university on which the region is centred. In Northern Ireland the duty is laid upon the hospitals authority—a body corporate—to provide the Queen's University of Belfast with adequate facilities for medical teaching.

Of the students in Great Britain, about 5,000 are in the schools of the University of London, 4,500 are in the schools associated with the universities in the provinces and in Wales, and some 3,700 in the Scottish universities.

The number of passes and rejections in the final or qualifying examinations held in 1950 by the various examining bodies was as follows:

	Passes	Rejections
Medicine	3,113	1,512
Surgery	2,908	1,757
Midwifery	3,257	1,663

Women students are in the proportion of between one in four and one in five. Their proportion is lower in the London than in the provincial and Scottish schools.

THE LONDON UNDERGRADUATE SCHOOLS

The past year has seen little changes in the London schools. As one dean expresses it, it has "fortunately been a year without too much history." The schools in London having the largest number of students, taking preclinical and clinical together, are St. Bartholomew's, Guy's, the London, the Royal Free, Middlesex, and St. Mary's.

The *Medical College of St. Bartholomew's Hospital*, where the total number of students remains at approximately 800, consistently follows the policy, so far as the clinical years are concerned, of teaching medicine as a single subject—in other words, refusing to allow its main branches of clinical medicine, surgery, and obstetrics to fly into too many splinters and specialties. The dean points out that the pressure towards such fissiparism is great because of the increasing specialization in clinical work, but it is felt that special courses in subjects like thoracic surgery, neurosurgery, cardiology, and so on are for the postgraduate rather than the undergraduate. At St. Bartholomew's a continuing difficulty is that of getting sufficient accommodation. New buildings would have been needed even if this problem had not been accentuated by war damage.

At the *Middlesex Hospital Medical School*, as at most others, the number of candidates seeking admission is still very high, and it is suggested that application should be made two years in advance of the date at which entry is required. As from October, 1953, Middlesex will be adopting the new regulations of the University of London for the preclinical curriculum which are being instituted as an alternative to the present arrangements for first and second examinations for medical degrees. These new regulations aim at closer co-ordination in the teaching of first and second M.B. subjects, and questions on elementary anatomy and physiology will be included in the papers on chemistry, physics, and biology, making up Part I of the examination. As from October, 1953, therefore, students will be admitted only for the whole of the preclinical course, beginning with instruction in chemistry, physics, and biology (or for the clinical course in the case of students from the Universities of Oxford and Cambridge) and not direct to classes in anatomy and physiology as at present. That is the major change envisaged for the near future. There is also, of course, the matter of the posts to be held during the period of provisional registration. All universities in England and Wales and the Examining Board in England have recently agreed to complete reciprocity in the matter of approval of house appointments to be held during the period of provisional registration.

Middlesex Hospital continues its connexion with St. Ann's General Hospital, where Middlesex students receive instruction in infectious diseases, and with Harefield Hospital, where they go for instruction in pulmonary tuberculosis, and the facilities granted are very greatly appreciated. The majority of the students also have the opportunity of attending the Central Middlesex Hospital for a period of three months as clerks or dressers during the first of their clinical years, and the more senior students also attend teaching rounds of the staff of Central Middlesex Hospital and the department of pathology there.

At *Guy's Hospital* there are 80 vacancies in the preclinical period, of which roughly two-thirds are for the first year, the remaining third entering the second year, the first M.B. having been already passed. In addition 25 places are reserved for Oxford and Cambridge students for the clinical period of study. All students take a three-months preliminary course before entering the wards. There is a full range of house appointments for which students may apply when they qualify, and every encouragement is given to men of promise to obtain the higher degrees and diplomas. House officers and students, during selected weeks of their course, live in the college; and there are two hostels where a limited number of senior students can live near the hospital. It is a condition of entry to the medical school that students should join the clubs' union, which covers all athletic and intellectual activities and includes membership of the students' club. During the year the school has been fortunate in acquiring a large warehouse adjoining the new pathology building, and it is hoped that conversion of this building into additional teaching and research accommodation will begin during the coming year.

The entry of students at *St. Mary's Hospital Medical School* during the new session will be about 70; the number of undergraduate students is kept at approximately 450. University gradings for full-time staff are adopted, and there are 7 professors, 6 readers, 11 senior lecturers, and 27 lecturers or assistant lecturers. The consultant staff of the hospital are appointed part-time clinical teachers in the medical school, and number 35 at present.

The physics department research laboratory at St. Mary's has been re-equipped, and the teaching laboratory is being altered before the beginning of the new session so that it will be able to hold an increased number of first-year students when the new regulations of the University of London for the preclinical curriculum are adopted by the Medical School in October, 1953. The transfer of the teaching of biochemistry from the department of physiology to the department of biochemistry has permitted the reorganization of the space available to the physiology department. Alterations have been carried out to one of the teaching laboratories, giving much improved facilities, and the other has been converted into research rooms and a laboratory for students taking the Honours B.Sc. degree. The quarterly clinical appointments were reviewed at the beginning of the year and the new arrangements now permit students to revise during the three months preceding the final examinations. The plans for the students' hostel at St. Mary's, which it is hoped to open in October, 1952, are in an advanced state, but owing to the difficulty of obtaining a building licence it is likely that the hostel will have to be completed in two stages.

A Year of Consolidation

The same story is heard from *St. Thomas's Hospital Medical School*, that the number of applicants exceeds by a huge figure the 80 available clinical places, which form the maximum entry the school can take with the existing number of beds. Until rebuilding can take place the number of teaching beds and the accommodation for teaching and laboratory work are stabilized. The teaching staff now includes seven professors and five readers, two readerships being temporarily unfilled. The medical and surgical professorial units are well established in their renovated laboratories and many research projects are in hand. A readership in obstetrics and gynaecology forms the first whole-time appointment in these subjects and completes the initial step towards a full professorial unit, though this will not be fully achieved until more beds and accommodation are available. By careful utilization of space every member of the staff has at least some laboratory provision for his own work. More beds are urgently needed in the parent hospital; the out-patient department continues to attract enormous attendances. Co-operation with the hospital is on a sound and friendly footing, and a most handsome gift for research purposes has been made to the school from the hospital endowment funds. There are now four research Fellows working in the school; again lack of space makes further appointments difficult. The library service has been extended, a system of departmental libraries is working well, and the reorganization of the pathological museum has made considerable progress.

Like other London schools, St. Thomas's in 1953 will adopt the new London University curriculum which will close the second-year entry. The dean adds, "Among the qualified men the enthusiasm for entering general practice has suffered a severe reduction compared with pre-war days, which suggests that there are here problems badly needing the attention of those who administer the National Health Service Act."

No change has been made in the total number of beds available at the London Hospital for clinical teaching.

They remain at 885, of which 186 are at the Annexe at Brentwood. The *London Hospital Medical College* will remain under the old regulations so far as the first M.B. is concerned, and will continue to accept as preclinical students those who have obtained exemption from the first M.B. at school. At the same time, as in the past, Queen Mary College will continue to teach the premedical subjects to students selected for later admission to the London Hospital, and these will take the first M.B. London from Queen Mary's. At present the London is still taking about 80 preclinical students a year, but this number is likely to be slightly reduced in future.

During the academic year an entirely new course of senior clinical lectures has been given at the London, and has proved of considerable advantage over former methods. The clinical curriculum has also been under review and various reforms will shortly be put into practice. The main objective is that in future the curriculum shall provide for a free period of several months between the end of organized teaching and the taking of the clinical parts of the final examinations. It is felt that such a period is urgently required by the student for the integration of his knowledge. Facilities for clinical teaching have been much improved during the year by the provision of a second, although temporary, clinical theatre. There are 43 junior appointments to the house, and because of this large number the London is fortunate in still being able to provide house job experience for the majority of its newly qualified men.

Personal Advisers for Students

One of the new developments at *King's College Hospital Medical School* is the establishment of a scheme to provide personal advisers for students. The advisers are members of the medical staff who teach students during their first clinical year, and it is their job as advisers to maintain a personal contact with the students allotted to them throughout their undergraduate career, though they do not specifically advise them on academic matters, which is the province of the tutors.

King's College Hospital Medical School provides the clinical training for men and women students reading for the medical degrees of Oxford, Cambridge, and London. The annual admission is 50 medical and 25 dental students. The major development during the past year has been the conclusion of an agreement for association with Dulwich Hospital, where at least 200 additional beds will be available for student teachers. The teachers of the medical school will have these beds under their clinical control and will be assisted by the full-time tutors in medicine and surgery. It is hoped to appoint a full-time tutor in obstetrics later. The policy of the medical school is to maintain a balance between full-time and part-time teachers for undergraduates. The clinical teaching is carried out mainly by part-time consultants, of whom there are about 40, while in pathology the teaching is done entirely by full-time university professors, readers, and lecturers.

Students reading for the London degree take their preclinical subjects in the Faculty of Medical Science, King's College, London, where students are admitted once a year, in October. The lack of suitable laboratory accommodation at King's College precludes the introduction of the revised regulations for the preclinical examinations, which are due to come into force in 1953, and King's students will continue to be admitted either for the first or second M.B. courses, according to whether they have passed or gained exemption from the requisite examinations.

The authorized entry of medical students to King's College is, annually, 55 for the first M.B., and 120 for the second. The medical schools to which King's College students go for clinical work are King's College Hospital (47–49), Westminster Hospital (34–38), and St. George's (35–38). The numbers are approximate and vary from year to year. King's College admits a restricted number of women students—some 20 a year.

The *Royal Free Hospital School of Medicine*, which was for long a women's school, is now open to men as well as women, and has 474 students. There are nearly 900 beds available in the teaching group. Accommodation is provided in the hospital for students on their midwifery post and for part of their surgery and fevers posts. During this session lecture demonstrations in tuberculosis have been arranged at Clare Hall Sanatorium, South Mimms. The teaching staff for preclinical students at the Royal Free consists of 2 professors, 3 readers, 7 senior lecturers, 10 lecturers, and 14 assistant lecturers; and for clinical students of 1 professor, 4 senior lecturers, 6 lecturers, and 67 part-time clinicians.

This year the new wing to the medical school of the Royal Free has been completed, and the school now has the use of additional laboratories and research and tutorial rooms in all the preclinical departments, together with an inter-departmental workshop and an additional students' common-room. On the clinical side a new pathology teaching laboratory has been completed in Gray's Inn Road, and work is now in progress on the reconstruction of wards at the Liverpool Road branch of the hospital, which will eventually form a complete obstetrical and gynaecological unit. A part-time director in this branch of medicine has been appointed from October next.

University College Hospital Medical School is attached to one of the largest teaching hospitals in London, and finds the increased number of beds available for teaching purposes of great value to its students. A not inconsiderable part of the school's teaching is now carried out at St. Pancras Hospital, which houses a geriatric unit of 120 beds, a mental observation block, as well as general medical and surgical wards, and the London Hospital for Tropical Diseases is within its curtilage. The general medical and surgical beds at St. Pancras are used largely for the care of long-stay cases. This allows a rather more rapid turnover of patients in the parent hospital in Gower Street, which benefits not only the patients waiting for admission but also the students carrying out their clerking and dressing appointments.

The Position at the West London

Last year it was stated that the *West London Hospital Medical School* at Hammersmith was for the moment admitting no further undergraduate students, that the present undergraduate courses would probably be completed by 1952, and that the extent of future co-operation with the Postgraduate Medical School at Shepherd's Bush was under discussion. The Dean (Dr. Maurice Shaw) now writes:

"We have been having negotiations with the Postgraduate School and with the Postgraduate Federation over possible schemes for collaboration, but so far nothing very practicable has materialized. A suggestion emanating from the Academic Council of the Postgraduate School has been that the West London Hospital should by slow degrees become an accident and emergency hospital by converting beds for this purpose as members of our staff retire. This is a very long-term scheme and certainly has not the approval of my colleagues here.

"During the next twelve months we shall be completing the education of our remaining undergraduates and at the same time giving postgraduate instruction to the students referred to us by the Postgraduate Federation and to some others who apply to us direct.

"The main difficulty of an amalgamation with the Postgraduate School is that the two hospitals are too far apart, and it was found by experiment early in 1950 that it is impossible to teach students of one school effectively at two different hospitals. I know this is done in certain special hospitals, not unsuccessfully, but we have found that students do not like journeying from one hospital to the other and prefer to do all their work in one place.

"I do not suppose that any final decision will be made for some time, and for the moment our activities will continue as above indicated."

Planning at Charing Cross

The *Charing Cross Hospital Medical School* has had a very successful year, as is exemplified by the pass list in

the final M.B., B.S.(Lond.) examination, when over 90% of the students taking Parts II and III for the first time were successful. In addition four past students gained their M.D.(Lond.) and two were successful in the M.S.(Lond.)

A number of the short-term plans for extending the accommodation of the Medical School have reached fruition; in particular a large part of a building, formerly a restaurant, in William IV Street, Strand, has been adapted to provide much more accommodation for the departments of chemistry and of clinical pathology. In consequence all the work in organic chemistry, biochemistry, and chemical pathology, as well as in bacteriology and haematology, has been transferred to these new premises, which include good laboratory accommodation, practical class-rooms, lecture theatre, and research units. The space vacated by these departments in the Medical School is being adapted so that the department of morbid anatomy can have a great deal more room and the department of pharmacology can be established as a separate unit.

The future of the Charing Cross School is regarded as most promising. Negotiations have been successfully completed so that the premedical subjects of chemistry, physics, and biology will again be taught in this medical school, starting in October, 1952 (in conjunction with the Royal Veterinary College). This will make it possible to integrate the subjects of the first and second M.B. when the new requirements of the University of London come into force in 1953. Mention was made last year of the future plans to move Charing Cross Hospital and its medical school to a new site of 46 acres at Northwick Park, the hospital to house 800 beds. The plans for this have been submitted to the Ministry of Health and to the University of London, and working drawings are now being prepared. The Minister has indicated that he hopes an early start can be made with this new project, although at the moment the scheme is being temporarily held up by the need of national economy in relation to the rearmament programme. The School has been greatly encouraged by the recent designation of Kingsbury Maternity Hospital to the Charing Cross group of hospitals, thus affording adequate facilities for the teaching of midwifery. The Kingsbury site is to be adapted to form an obstetric unit of the new hospital at Northwick Park, and thus carries Charing Cross a stage further in its plans for the future.

During the year Professor H. W. C. Vines retired from the office of dean after more than five years of strenuous work to re-establish the School following the war period. During this time the School has had largely to be rebuilt, and the departments of anatomy, physiology, and pharmacology have again been brought back to Charing Cross. The results of his energy and vision have added greatly to the vigour of the School. His place as dean has been taken by Dr. E. C. Warner.

Attendance at G.P. Surgeries

One of the arrangements at *Westminster Medical School* is that students as part of their course may attend the surgeries of general practitioners in the neighbourhood. This scheme is popular with the students, and the general practitioners concerned report favourably on the results. It is hoped later to arrange also for students to accompany general practitioners on their visits to patients' homes. The number of clinical students at Westminster remains at about 190, which includes 20 women. Some 60 first M.B. and second M.B. students, selected jointly by Westminster and King's College, are pursuing their preclinical studies at King's College with a view to subsequent admission to the clinical period at Westminster. The annual clinical entry, including students from Oxford and Cambridge, has been limited to 70.

Although the new regulations for the M.B., B.S. degrees of the University of London will come into force in October, 1953, Westminster, like King's, will be allowed to continue under the old regulations. This means that it will still be possible for students accepted by Westminster to obtain the first M.B. exemption from school. The building of a preclinical school at Westminster has been approved in principle by the University of London, and a site has now been procured which is large enough to provide also for the rebuilding of the existing clinical school. Examination successes have been well maintained. A Westminster student obtained the University Medal for the most distinguished performance in the final M.B., B.S. examinations. The students' health service continues to prove its value, and it is proposed to extend the scheme to include Westminster students at King's College from October of this year.

The number of consultants (part-time) who take part in the teaching at Westminster is 45; the full-time teaching staff in the departments of bacteriology and associated departments consists of two professors, and five senior and two junior lecturers.

St. George's Hospital Medical School has for some time submitted to the handicap of cramped and inconvenient premises on the assumption that complete rebuilding of the School and hospital was imminent. During the past 12 months, however, it has become increasingly obvious that any such project could not be completed within a decade, and that present conditions could not be tolerated for so long. With the agreement and help of the University of London, therefore, St. George's has embarked on a scheme of alteration and enlargement, of which part is already completed and part is under construction, with the hope of completion within 18 months. The administrative offices, students' refectory, and club have already been moved to new and larger premises in Knightsbridge in direct continuity with the School, and their former situations have been used for further laboratory development. Meanwhile the old museum, a large single-story structure, is being converted to a three-story building to house teaching and research laboratories. It is fortunate that this can be done from the rear of the building with a minimum of interference with the working of the School.

It is not anticipated that this enlargement will *per se* increase the student entry, as this must be governed by the number of teaching beds available in the St. George's group, and even with the help of clinical facilities at St. Mary Abbot's Hospital it is felt that the optimum entry should not be more than 45 men and women a year. There is hope, however, that clinical facilities may be increased in a few years' time, when, of course, the situation will be reviewed.

MEDICAL EDUCATION AT OXFORD AND CAMBRIDGE

Changes in the Regulations at Oxford

Certain changes have recently been made in the Oxford regulations for medical degrees. For the degree of Bachelor of Medicine certificates of attendance at courses in mental disease and infectious diseases must now be produced before a candidate may be admitted to the final examination in medicine, surgery, and midwifery, instead of before admission to the examination in forensic medicine and public health.

A new statute and new regulations governing the degree of Master of Surgery will take effect on October 1 next, and the first examination under the new statute and regulations will be held at the end of Trinity term 1952. The examination will be divided into two parts. Candidates for Part I must have reached their seventh term from the date of passing the second examination for the B.M. degree; candidates for Part II must have passed Part I and have reached the sixteenth term from the date of passing the second examination for the degree of B.M. The subject of Part I will be the principles and practice of surgery. Part II will consist of a thesis and *viva voce* examination to test the candidate's general competence in his own field.

From the new regulations it appears that Part I of the examination will consist of (1) a written paper in two

sections, (2) an essay, and (3) a practical and *viva voce* examination, including clinical cases, operative surgery and anatomy, pathology, radiodiagnosis, and other diagnostic methods.

The School Year at Oxford

The number of new preclinical students at Oxford continues to be restricted by decree. During the coming academic year 55 men and 10 women will again be admitted. The selection of candidates is made by a central university committee; their names are put forward by the colleges, so that a preliminary acceptance by a college is essential for any prospective medical student. Students reading medicine at Oxford must in addition qualify for a B.A. degree. Almost all medical students do this by taking the final honour school of animal physiology, which normally occupies them for one year after they have taken the first B.M. examination in anatomy and physiology. A few students take instead the final honour school of psychology, philosophy, and physiology. After taking the B.A. degree most students do a course in general pathology and bacteriology and pharmacology, lasting two terms, before going on to their clinical studies.

The clinical section of the school continues to limit its entry to 32 students a year, so that a high degree of personal supervision and opportunities for practical experience may be retained. About two-thirds of the clinical students are drawn from Oxford preclinical students and the remainder come from other universities, normally to take the degree of their own university. At the present time the clinical students include men from Cambridge, Leeds, and London Universities, and in addition scholars come regularly from the Dominions. By assembling such a mixture of students the University hopes to minimize any risk of parochialism among students who receive their complete medical training in Oxford.

The Radcliffe Infirmary (520 beds) remains the main teaching hospital, but practical instruction also proceeds in other members of the United Oxford Hospitals Group (1,250 beds). In addition the Wingfield-Morris Orthopaedic Hospital is used for orthopaedic training and the Littlemore Hospital for training in mental diseases. The small size of the student body ensures good opportunities for practical experience. For example, in both medicine and surgery the students spend half their time in a firm containing four students and half in a firm containing eight. Instruction is given partly by the whole-time Nuffield professorial units of medicine, surgery, obstetrics and gynaecology, anaesthetics, orthopaedic surgery, and plastic surgery, and partly by the consultant staff of the Radcliffe Infirmary. In general medicine all students spend three months with a consulting physician and three months with the professor of clinical medicine. In this way students are provided with a mixture of academic and vocational training. The Radcliffe Infirmary is an active centre of clinical research, and it is hoped that students will be stimulated by being taught in this environment. At the same time the large share in the teaching taken by the consultant staff ensures that the course is rich in practical instruction. Throughout the clinical course each student has a tutor who sees him regularly in the traditional Oxford way. The tutorial system is proving to be a valuable part of clinical education.

The Cambridge Tradition

At the University of Cambridge the number wishing to enter the Medical School still greatly exceeds the number of places which can be found (some 220 per annum), and all college entries are subject to a university quota. Most of the colleges will not admit to read medicine unless the student has passed three parts of the first M.B. before coming into residence. This policy allows the student every opportunity of getting a good class in Part I of the natural sciences tripos, while those who have the ability and energy are able to take Part II of the tripos during the third year of residence. A revision of the syllabus for the first M.B. examination is under discussion, and the new regulations for the final M.B. examination are now in operation, with latitude for the taking of the examination under the old regulations for all who matriculated before October, 1946. The first part of the final (the basic subjects of pathology, pharmacology, and therapeutics) may be taken after two and a half years of clinical study. The clinical subjects (medicine, surgery, and midwifery and gynaecology) constitute the second part of the examination and may be taken after three years of clinical study. At his first attempt the candidate has no option but to take the three main clinical subjects simultaneously, but a pass is permitted in one or more subjects provided that a reasonable standard is attained in the remaining subject or subjects.

The undergraduate in Cambridge, having qualified in anatomy and physiology, has excellent opportunities for preparing for clinical studies during the Long Vacation, when he may attend courses in elementary clinical methods and in elementary psychology, including practical demonstrations in clinical psychology. A readership in clinical psychology has recently been established. In the course in clinical methods the teaching is confined to the simple technique of making a proper examination of a patient presenting at the general and special departments of a hospital. Lectures in medical statistics and medical genetics are included in the course.

During the past year a veterinary school has come into being at Cambridge, and veterinary students will work alongside medical students, to mutual advantage, for many of the subjects leading to the tripos.

Some account of the postgraduate facilities at Oxford and Cambridge is given in another section.

MEDICAL SCHOOLS IN ENGLAND AND WALES

The Yorkshire Schools

The medical schools in England and Wales attached to the civic universities outside London report no falling off of applications for admission. In most of the schools the applications are greatly in excess of the numbers of places, although, of course, it has to be remembered that many candidates make application to more than one school.

At the School of Medicine of the University of *Leeds* the most important development during the past year has been the replanning of the final examination. An attempt has been made in medicine and surgery to integrate the special subjects with the general without in any way lowering the examination standard. It will in this way be possible to reduce the very numerous occasions on which the unfortunate examinee is compelled to meet his inquisitors.

The discussions on the revision of the curriculum at Leeds have been long drawn-out, but thanks to the co-operative attitude of the scientific departments of the University it is hoped soon to be able to offer a first-year course which will be available to scholars who have not concentrated entirely on scientific subjects in their last years at school. The difficulties of accommodation are unhappily still present at Leeds, but by continuing the policy of acquiring and converting houses in the neighbourhood of the School the most pressing problems can be alleviated, if not solved. The maximum annual entry at Leeds is 75.

At the other Yorkshire School—*Sheffield*—an interesting feature which has been introduced into the curriculum is the attachment of each student, for a period of two weeks during his final term, to a practitioner in the city, so that he may learn at first hand something of general practice both in the surgery and in the patient's home. During this, its first year of trial, the scheme has been accounted a success by practitioner and student alike.

As yet there is no sign of new building at the Medical School at Sheffield, but it is satisfactory to record that significant progress has already been made with the new dental hospital, which, when completed, will permit a considerably increased intake of clinical dental students.

The earlier history of Sheffield University and of its Faculty of Medicine in particular was recalled by the death during the session of Sir Arthur John Hall, who had joined the school as an assistant demonstrator of physiology in 1889 and was one of the principal builders of what in 1905 became the Faculty of Medicine of the new University. He was one of the great pioneers of medical education in the provinces.

Lancashire and the North of England

Hitherto in the University of *Manchester*, teaching in medicine and surgery has been given only at the Manchester Royal Infirmary and, in obstetrics and gynaecology, at the St. Mary's Hospitals at Whitworth. A new arrangement has now been made with the Manchester Regional Hospital Board whereby a limited number of students will receive instruction in these main subjects of the curriculum at Ancoats, Crumpsall, Salford Royal, and Withington Hospitals. This, it is hoped, will widen the student's experience by observation of patients of a type he will be likely to meet often in general practice.

Progress is being made at Manchester in accommodation for a number of departments. The new clinical sciences building should be completed early in the autumn and will be occupied by several departments, including pathology, rheumatism research, experimental medicine, experimental surgery, occupational and child health, social and preventive medicine, and otolaryngology. A new general purposes building is planned for a site adjacent to the Royal Infirmary and will house the departments of clinical pathology, radiology, and medical illustration, and will also give additional accommodation for some other departments. This will be the first permanent new building on the Infirmary site to be put up since the war, and it is hoped that it will be completed in about three years.

At *Liverpool* the applications for admission to the Medical School continue to be greatly in excess of the 100 available places. Of the better-qualified candidates 284 have been interviewed by a selection committee on which members of the teaching staff serve in rotation. There have been no major changes in the curriculum during the year, but there is a growing feeling that the time which should be devoted to clinical instruction in medicine, surgery, and obstetrics and gynaecology is being encroached upon by the claims of the special subjects. The professors in the main subjects have been asked to review the curriculum from this standpoint and to make recommendations.

Plans for the building of a new medical school at Liverpool are well advanced, and it is hoped that a start will be made in the building of the first section before the end of the year. This will house the departments of bacteriology and pharmacology, and will include animal-house accommodation. It will be built on a site adjacent to the existing school and contiguous with the area set aside for the eventual erection of a new Liverpool teaching hospital.

At the University of *Durham* there has been a slight falling off in the number of applications for admission, but this has not eased the task of selecting candidates to any great extent, as the number of applications still greatly exceeds the number of places. The majority of candidates continue to apply for entry to the second-year course, and the main intake in this coming session will consist of students who qualify for exemption from the first M.B., B.S. by passing the subjects of chemistry, physics, and biology at the advanced levels in the new general certificate of education examinations. The introductory clinical course at Newcastle-upon-Tyne (King's College) is now held during the Easter term and takes the form of lectures and demonstrations followed by ward rounds under tutors. During this course the subjects of medicine, surgery, paediatrics, midwifery and gynaecology, ophthalmology, oto-rhino-laryngology, anaesthetics, and psychiatry are introduced to the students in preparation for the commencement of their clinical appointments in the teaching hospital in July. A second introductory clinical course is held during the month of September for students passing anatomy and physiology in the second M.B., B.S. examination in June. Arrangements have been made to allow certain selected students to read for an honours degree in physiology in addition to the degree in medicine and surgery. Such students enter the honours school of physiology after passing anatomy and physiology in the second M.B., B.S. examination.

Midlands and the West

At the *Birmingham* Medical School the applications for admission continue to be out of all proportion to the accommodation available, although the figures show some decline. It is generally agreed that the greater care given in recent years to the selection of candidates is beginning to bear fruit, and the results at the recent second M.B., Ch.B. examination, Part I, are better than they have been for some years. In a few years' time material should be available for significant analysis.

Probably the most outstanding event at Birmingham during the year has been the creation of a chair of experimental psychiatry. The professor will work in close association with the local mental hospitals, and much is expected from this venture. It completes, with neurology and neurosurgery, the three units in the department of neurological studies.

The proposed changes regarding the final M.B., Ch.B. examinations, to which reference was made last year, have been put to the test and, by general agreement, have proved successful. They have had the very desirable effect of giving the student a lengthy run in his clinical course, entirely unfettered by examinations. The clinical board has recently had the introductory course under review, and in the light of the experience of the last three years it appears that some modifications may be desirable.

In order to foster the communal life of the University at Birmingham it is proposed that the Medical School shall remain open to students and staff until 10 p.m. It is realized that one of the chief defects in the life of a modern university is that there are so few halls of residence, and students so often have to read under extremely difficult conditions in their own homes or, worse still, in lodgings. It is also proposed that certain members of the staff shall hold clinical tutorial classes in the evenings, on a purely voluntary basis. But the primary aim of the scheme is to provide the student with an environment for reading and communal life. The library also will be open in the evening, and light refreshments will be available in the buffet.

The year at Birmingham was overshadowed by the sudden death of Sir Leonard Parsons; Professor A. P. Thomson has been appointed to succeed him as dean.

In the Faculty of Medicine at *Bristol* there is little change to report during the year. Competition for admission still continues high. With an intake of only 60 students a year there have been nearly 600 applications. About 30 students are accepted in the first year, and about 30 in the second, with exemption from the first M.B. courses and examinations. Applications for admission to the dental school are much fewer than for medicine, but the School is able to accept its maximum number, which is 25 a year. The main new development at Bristol has been the creation of full-time chairs in bacteriology and in obstetrics and gynaecology. The full-time teaching staff at Bristol includes 11 professors, 31 lecturers, and 7 demonstrators or tutors, and there are numerous part-time teaching staff.

Welsh National School of Medicine

So far as administration and premises are concerned the past year in the Welsh National School of Medicine at *Cardiff* has been one of consolidation rather than expansion. It will be the policy of the School to limit capital expenditure as much as possible, apart from the cost of the new medical teaching centre. Since last year's report sanction has been obtained from the Government to purchase the site of 53 acres on the Heath Estate for a new general hospital and medical school, and it is hoped that

the contract will shortly be completed. In the meantime a joint working committee of the University, the Medical School, the United Cardiff Hospitals, and the regional board has been formed to take charge of the preparation of plans. This working committee has formed a medical subcommittee, which is devoting much time and attention to matters of detail in connexion with the scheme, as, for example, the number of beds constituting a clinical unit, the relationship between the several units and diagnostic facilities, the relationship between out-patient and in-patient departments, and, most difficult of all, the close association within one building of the medical school departments and the hospital units. It is likely that detailed specifications will be drawn up shortly which will form the basis of architectural competition—if Treasury sanction to proceed is given.

The Institute of Pathology of the Medical School at Cardiff Royal Infirmary, which has been in course of construction for some 10 years, is now virtually complete, and there will shortly be an opening ceremony. Work is proceeding on the new maternity hospital and a research centre in anaesthetics. The new chair and department of child health are now well established and working smoothly.

Entirely new regulations for the degree of M.B., B.Ch. were adopted by the University of Wales during the session now ended. These involve a complete revision of the medical courses, and particularly the abolition of the compulsory degree in science or arts as a condition precedent to the degrees in medicine. The courses in anatomy and physiology will be somewhat shortened, and the clinical period correspondingly extended. The whole time-table will therefore require revision, as regards both classes and appointments, and also degree examinations. The new regulations apply to all students entering the first preclinical year in October, 1951.

The student entry remains about 65 each year.

SCOTTISH AND IRISH SCHOOLS

Although the number of students in attendance at the Medical School of *Glasgow* University is still taxing the available accommodation, the extreme congestion which was created in 1947 by the absorption of the students of the two local extramural schools is now being slowly relieved as these additional students complete their curriculums. The burden on individual teachers has also been lightened by the reinforcement of the staff of many departments as a result of new appointments in the lecturer grade. Additional hospital units at Stobhill Hospital, Southern General Hospital, and the Royal Alexandra Infirmary, Paisley, have been brought into the undergraduate clinical teaching service. At the Southern General Hospital also it is hoped to institute during the session a special unit for instruction in psychological medicine and in neurology, mainly for postgraduates.

At *Aberdeen* again no changes of great importance have taken place during the year, either in the staffing of departments or in the curriculum. The extension of the buildings at Foresterhill has been completed and now houses the new departments of child health and mental health, as well as providing additional accommodation for the departments of pathology, midwifery, and social medicine. During the year an ordinance has been approved by Parliament for the establishment of a chair of social medicine, and in due course steps will be taken to fill this new and interesting post. It is hoped that the department of social medicine will continue to be associated with the public health activities of the city, as well as with the local hospitals and industries.

In the School of Medicine of the University of *St. Andrews* instruction in the clinical years of study is given in Dundee, while the premedical and preclinical subjects can be taken either there or at St. Andrews. The annual intake of students to the Faculty of Medicine is limited to between 70 and 80 entrants to ensure that the hospital facilities available are sufficient to allow of adequate clinical instruction being given to each undergraduate as advised by the Goodenough Committee. In October, 1948, the six-year curriculum, recommended by the General Medical Council, was introduced, and the necessary arrangement of work in the later years of study has now been completed. St. Andrews has also instituted chairs in social medicine and in child health, so that in this respect also the recommendations of the Goodenough Committee have been fulfilled. The dean states that so far the introduction of the National Health Service has had but little influence upon the undergraduate, but it has called for a complete reorganization of postgraduate instruction with a view to the training of specialists.

At both St. Andrews and Dundee there are excellent student residences which accommodate undergraduates from any of the faculties. Medical students in their early years are encouraged to reside here, so that there is a width of contact between the undergraduates which is of great educational value. The William Low residence for medical students, situated near the principal teaching hospital, is devoted exclusively to undergraduates in their clinical years of study. In this medical school, in the anatomy and physiology departments, there are 4 full-time professors, 14 full-time lecturers, 4 full-time assistants, and 1 part-time assistant; in the clinical departments there are 8 full-time professors, 20 full-time and 36 part-time lecturers, and 6 full-time and 16 part-time assistants.

The Edinburgh School

In the Faculty of Medicine of the University of *Edinburgh* the course for the M.B., Ch.B. degree now occupies a period of six years, and the stage has now been reached at which the students begin, in October next, the fourth year of the six years' curriculum. Students are still continuing to attend the five years' medical curriculum, and next July the last full class will be due to qualify. In July, 1953, the graduating class will be very much smaller than usual. Thereafter approximately 200 students will be in the qualifying years.

New regulations for the degree of M.D. came into effect in Edinburgh in 1949. The main change in the regulations is that the first stage in connexion with the degree is the submission of a thesis. After the thesis is examined the candidate may be required to present himself for further examination. Under the old regulations the examination was divided into two parts—namely, the clinical examination and the submission of a thesis—and these parts could be taken at different times.

The course for the University degree of Bachelor of Dental Surgery has now reached the stage when about 20 students will be due to commence shortly on the third year of study. A considerable number of applications for admission to the B.D.S. course in October have been received, and the number of applications for admission to diploma courses continues to be satisfactory. The number of applications for admission to the M.B., Ch.B. course is still very high, though it has definitely dropped to a much lower figure of 1,200 this year.

The University does not offer courses in preparation for the higher degrees in medicine or surgery. Courses specially arranged for postgraduate students are, however, offered under the auspices of the Edinburgh Postgraduate Board for Medicine, and some account of these appears elsewhere in this number.

The Queen's University of Belfast

The number of annual entries to "Queen's" at *Belfast* is restricted to 108, and up to 20 places are allocated to the School of Dentistry. Applications for admission far outnumber the places available, and priority is given to children of persons normally resident in Northern Ireland and to children of graduates of "Queen's." A few places are reserved for applicants from the Crown Colonies, but these must be sponsored by the Colonial Office. When priority applicants have had places, any places which remain —usually not more than five or six—are allocated to selected applicants from Great Britain and overseas. Requirements for admission are: (1) matriculation in five subjects, amongst

which English, mathematics, and a modern language are compulsory; (2) a qualifying examination in Latin; and (3) the premedical examination in chemistry and physics. External examinations and courses of study for the first M.B. are not recognized for exemption from the course and examination for the first M.B. in Queen's University. The new curriculum has now been introduced throughout the whole six years, and the last examination under the old curriculum will be held in December, 1951.

The teaching staff at Belfast consists of 15 professors, 7 readers, 40 lecturers, and numerous special lecturers, tutors, and registrars. The staff has been increased by the establishment of new lectureships and tutorships in medicine, surgery, obstetrics, and child health. A new lectureship in physiology for dental students has been created. The Institute of Pathology has been enlarged, and a much-needed increase of space has been obtained for the museum and for students and research workers.

The students' health department plays an increasing part in the life of this University. It is reported that B.C.G. inoculations have been carried out successfully on Mantoux-negative preclinical medical students, with 100% conversion and no complications. A welfare officer has been appointed to look after the general welfare of the students and to inspect lodgings, and in particular to have regard to the welfare of overseas students in conjunction with the British Council.

The School of Physic at Trinity College, *Dublin*, will start in October with a full complement of students. The number of applications has again greatly exceeded the number of available places. Arrangements for post-qualification hospital appointments to be introduced under the new British Medical Act are being considered in consultation with the other Dublin schools. The Dublin teaching hospitals will not be able to provide such posts for all the graduates of the three Dublin schools, but it is hoped that suitable accommodation can be found in provincial Irish hospitals and perhaps in some English ones.

The National University of Ireland has three constituent University Colleges—those of Dublin, Cork, and Galway. Over 230 students graduated in medicine from these Colleges last year. The winter session begins in October.

GOING ABROAD

Government Service

The Foreign Office employs a small number of British doctors abroad. There are medical officers attached to the British Embassies in Bucharest, Kabul, Moscow, Teheran, and Warsaw. These doctors have diplomatic status, but their function is the medical care of the staffs of these Embassies and their families, and sometimes of other British subjects and other members of the Diplomatic Corps. The Foreign Office also employs medical advisers to the British Middle East Office in Cairo and to the Political Resident on the Persian Gulf: these two posts are mainly advisory and administrative. Then there are two quarantine medical officers on the Persian Gulf.

A certain number of doctors are employed in the occupied territories—for example, by the British Military Administration in Libya. These appointments are administrative and clinical.

Dominion Governments and Provincial or State Governments sometimes employ doctors from the United Kingdom. These appointments are usually for special work in particular territories (e.g., New Guinea) and are generally short-term (two to five years). They are advertised in the medical press.

There are a very small number of local Government appointments abroad, such as those of Medical Officer of Health of Nairobi and Medical Officer of Health of Addis Ababa.

Semi-Governmental Appointments

The Overseas Food Corporation employs a considerable medical staff in connexion with the groundnuts project in Tanganyika. There are general-duty officers, specialists, and administrative officers, and vacancies are advertised in the medical press.

Teaching Posts

Doctors from the United Kingdom are employed as teachers in a considerable number of medical schools overseas. Besides the well-known medical schools in the Dominions, there are the Universities of Hong Kong and Malaya, Makerere College in Uganda, the University College of Ibadan (Nigeria), the University College of the Gold Coast, the Kitchener School of Medicine at Khartum, and the new University College of the West Indies in Jamaica. British teachers are also employed in the medical schools of Cairo and Bagdad.

Overseas teaching appointments provide a valuable opportunity to spread British medical knowledge and ideas. Vacancies are generally advertised in the medical press, but the recruiting agency for certain of the Colonial medical schools is the Inter-University Council for Higher Education in the Colonies (1, Gordon Square, London, W.C.1).

Hospital Appointments

There are a number of hospitals abroad which employ British doctors—for example, the King George V Merchant Seamen's Memorial Hospital, Malta; the Hertford British Hospital, Paris; and the British Hospital, Lisbon. The terms of appointment vary considerably. In general foreign qualifications are not required, but a knowledge of languages is an advantage.

Dominion and American hospitals frequently advertise short-term resident appointments in the medical press of the United Kingdom. The shortage of housemen seems to be as severe in the U.S.A. as in Britain. Local licensure is not necessary for interns (housemen) in most American States, but there is sometimes difficulty in obtaining a visa to enter and work in the U.S.A. It is advisable to consult the nearest U.S. Consulate before accepting an American hospital appointment.

Commercial Appointments

Many commercial undertakings employ medical staff abroad. Some of the big oil companies in the Middle East and elsewhere have medical staffs of considerable size, including general-duty officers, specialists, and administrative officers. Some large engineering firms have overseas medical staffs, and other examples of employers in this field are the United Africa Company, the Cameroons Development Corporation, and the mining companies in Rhodesia. As a rule young men are required for these appointments, and the possession of the D.T.M.&H. is sometimes demanded. Salaries are usually substantial, with free passages and generous leave entitlements. Short- and long-term appointments are available.

Private Practice

Medical qualifications obtained in the British Isles by British or Irish practitioners are registrable in the whole of the British Commonwealth, except four Provinces of Canada (British Columbia, Ontario, Quebec, and New Brunswick). They are also registrable in Burma and the Irish Republic. In certain other countries (e.g., Argentina and Egypt) a practitioner with a British qualification can in theory be registered without further examination, but in fact it is becoming increasingly necessary to take a local degree.

In all other countries it is necessary to obtain a local qualification. In the U.S.A. there is a central qualification, the Licence of the National Board of Medical Examiners. This licence is registrable in all the States except Florida,

Montana, and Wisconsin, although an additional oral examination is required in Hawaii, Illinois, Maine, Rhode Island, and Wyoming, and a brief supplemental written examination in Michigan. Holders of British University medical degrees are admitted directly to the examination of the National Board. If the holder of a British university medical degree also holds a Conjoint Diploma he is excused from Part 1 of the examination of the National Board and is required only to take Parts II and III. The requirements of candidates for medical licensure who hold only qualifications obtained in countries other than the U.S.A. and Canada vary considerably from State to State. A further period of study, an examination, and adoption of American citizenship are usually required.

The conditions of, and opportunities in, medical practice vary from country to country. In general, Australia, Canada, New Zealand, and South Africa can themselves supply their own needs for doctors, but this does not mean that there are no opportunities for doctors from Britain in those countries. There are openings for British private practitioners in Malaya and Southern Rhodesia, and there is a shortage of doctors in India, Pakistan, and many Colonial territories. As regards the U.S.A., general practice in the cities, and special practice, are adequately filled with American graduates, but there are vacancies in remote rural areas.

An important piece of general advice is not to emigrate from Britain to any country overseas without previously fixing a definite medical appointment to take up on arrival.

The Colonial Medical Service

Vacancies in the Colonial Medical Service occur in all parts of the Colonial Empire, the greatest number in tropical Africa and Malaya. Candidates must ordinarily be British subjects, holding medical qualifications registrable in the United Kingdom, and should have had at least 12 months' postgraduate hospital experience before appointment. Those applying for entrance into the permanent service must be under 40 or 45 years of age, according to the normal age of retirement (50 in West Africa and 55 in most other territories) in the area to which they are appointed. Contract appointments for short terms are available for candidates who are above the age limits or who, though below the age limit, do not wish to commit themselves to a Colonial career at the outset. Officers appointed to the permanent service are normally required to take a course in tropical medicine and hygiene before proceeding overseas or during their first leave.

In the first instance, medical officers are usually appointed for general duties, often involving the charge of a district hospital and responsibility for the medical administration of a district, though many officers are employed on clinical duties in the large hospitals. Some posts are concerned purely with public health work, and for these the possession of the D.P.H. or special experience in preventive medicine is necessary.

A large number of specialist appointments, calling for a very high standard of professional attainment, are normally filled from within the service by officers possessing the necessary aptitude and qualifications. Senior administrative appointments are also almost invariably filled by the promotion of serving officers. Officers possessing qualifications or experience in pathology would be considered for appointment to the laboratory establishments. Vacancies exist for women doctors, particularly those with special experience in obstetrics, school health, child welfare, and nutrition.

Doctors in the National Health Service may also avail themselves of a scheme which is in operation in most of the Colonies whereby they take up appointment in the Colonial Medical Service for temporary posts up to six years without loss of pension rights in the National Health Service. The scheme provides for the payment of a generous gratuity at the conclusion of the doctor's service abroad, but those wishing and eligible to transfer to the permanent and pensionable establishment of the Colonial Medical Service will have opportunities to do so. The Colonial Medical Service offers special opportunities and experience not obtainable at home, and that experience will be of great value to the doctors both in practices and in hospital appointments if they elect to return to this country.

In most territories doctors who possess certain higher qualifications (for example, F.R.C.S., M.R.C.P., D.P.H., etc.) enter the salary scales at points well above the minimum. In addition they qualify in the same way as others entering the service for increments of salary in respect of approved experience and war service.

Full particulars of terms and conditions of service may be obtained from the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W.1.

Medical Missions

To medical men and women with a sense of vocation and a desire to express and spread their faith through their professional work, medical missionary service offers vast opportunities. In China, Christian missions gave the country a medical and a nursing profession. In Africa they have pioneered rural health services, contributed to leprosy research and control, and assisted in the problem of training nurses and technicians. In India and Pakistan they have helped to maintain high ethical and professional standards, and demonstrated in time of crisis the Church's ministry of reconciliation.

The missionary societies regard 18 months' postgraduate work in resident appointments as a minimum and often advise work for specialist diplomas or higher degrees. In addition special missionary training is recommended. Terms of service vary in length from 18 months to six years, according to climatic conditions. While it is generally hoped that offers of service will be for life, short terms are also considered. Salary is on a missionary basis, with children's allowances and a pension scheme.

Applications from students and qualified men and women should be made direct to the missionary societies or through local branches of the Student Christian Movement or the Intervarsity Fellowship, or to the chairman of the Medical Advisory Board of the Conference of British Missionary Societies, Edinburgh House, 2, Eaton Gate, London, S.W.1.

MEDICAL SERVICE OF LONDON COUNTY COUNCIL

The London County Council, which is the largest local authority in the country, employs a large medical staff. Whole-time appointments in the Public Health Department, apart from those of medical officer of health, deputy medical officer of health, and senior principal medical officer, include five principal medical officers, nine divisional medical officers, five senior assistant medical officers, nine assistant divisional medical officers, and 73 assistant medical officers. Their duties in the higher grades are mainly administrative. The officers, speaking generally, have graduated through the clinical field and have special knowledge in at least one branch of the service. The assistant medical officers are mainly engaged in the school health and maternity and child welfare services. Suitable qualifications are the D.C.H. and the C.P.H. or the D.P.H. Arrangements are made for some of the officers to have clinical responsibilities at hospitals and to gain experience of the environmental health services in the metropolitan boroughs.

For the grades assistant medical officer to principal or divisional medical officer the present salaries range from £850 to £1,950 per annum.

In addition the Council employs nearly 500 part-time medical officers in a variety of work—for example, in residential nurseries, welfare institutions, staff examinations, sessional work at clinics, and in school medical inspection. By arrangement with the London School of Hygiene, the

Institute of Child Health, and several undergraduate schools, students are given opportunities of gaining experience in the council's various services.

The salary scales for higher posts on the L.C.C. staff have lately been examined by the Council in the light of the recent award of the Industrial Court, which award has been accepted by Committee "C" of the Medical Council of the Whitley Councils. The award prescribes the minimum salary of a deputy medical officer of health to be two-thirds of the minimum adopted for the medical officer, with equivalent annual increments. The L.C.C. had already fixed the yearly salary attaching to the office of medical officer of health at £3,800, subject to review when vacated by the present holder, and now proposes that the salary of the deputy medical officer (instead of the present scale of £2,000–£250 (biennially)–£2,500) should be £2,175–£262 10s. (biennially)–£2,700.

For divisional medical officers the salary varies on a population basis. For one division which has a population of under 250,000 the scale is to be £1,400–£50–£1,800; for four divisions where it is under 400,000 the scale is to be £1,500–£50–£1,900; and for the remaining four divisions, in each of which the population is over 400,000, it is to be £1,600–£50–£1,900. The proposed scale for other grades is as follows: principal medical officer, £1,950–£112 10s.–£2,175; psychiatrist (whole-time), £1,650–£50–£1,950; senior medical officer, £1,650–£50–£1,950; senior assistant medical officer, £1,250–£50–£1,500; assistant divisional medical officer (under 400,000 population). £1,350–£50–£1,650; (over 400,000 population), £1,400–£50–£1,700. The principal medical officer and the senior medical officers are to be redesignated senior principal medical officer and principal medical officers respectively.

QUALIFYING DEGREES AND DIPLOMAS

Medical degrees or diplomas are awarded by the universities and also by certain licensing corporations. The following are the abbreviations for registration following a pass in the final examinations in the universities: M.B., Ch.B., U.Birm.; M.B., Ch.B., U.Brist.; M.B., B.Chir., U.Camb.; M.B., B.S., U.Durh.; M.B., Ch.B., U.Leeds; M.B., Ch.B., U.Lpool.; M.B., B.S., U.Lond.; M.B., Ch.B., V.U.Manc.; B.M., B.Ch., U.Oxfd.; M.B., Ch.B., U.Sheff.; M.B., B.Ch., U.Wales; M.B., Ch.B., U.Aberd.; M.B., Ch.B., U.Edin.; M.B., Ch.B., U.Glasg.; M.B., Ch.B., U.St.And.; M.B., B.Ch., Q.U.Belf.; M.B., B.Ch., U.Dubl.; L.Med., L.Ch., U.Dubl.; M.B., B.Ch., N.U.Irel.

The Conjoint Boards

About 28% of those who passed the final or qualifying examinations last year did so under the auspices of one of the three Conjoint Boards—English, Scottish, and Irish.

Candidates for the English Conjoint are examined by the Examining Board in England of the three Royal Colleges (Examination Hall, Queen Square, W.C.1). Three examinations have to be passed: a premedical examination; a first examination in anatomy, physiology, pharmacology, and materia medica; and a final examination in pathology and bacteriology, medicine, surgery, and midwifery and gynaecology. Candidates are required to complete the medical curriculum extending over not less than 57 months of study at recognized schools and hospitals, and to pass the professional examinations in accordance with the regulations after passing any two parts of the premedical examination. The diploma is M.R.C.S.Eng., L.R.C.P.Lond.

The Board does not conduct a preliminary examination, but recognizes for the purpose those examinations which entitle a candidate to matriculate in the medical faculty of a recognized university in the United Kingdom or Ireland or of one of the recognized universities or medical colleges shown in Appendix II of its Regulations.

The Board's examinations are conducted four times a year, and candidates are required to give notice to the secretary of the Board 21 days before the examination. The first medical examination is in two parts: (1) anatomy and physiology, written, oral, and practical; and (2) pharmacology and materia medica, oral only. In the final examination, medicine and surgery and midwifery and gynaecology are written, clinical, practical, and oral; pathology is written and oral only, and may not be taken alone as the last part of the examination.

Candidates with evidence of not less than 27 months' recognized clinical study subsequent to passing in anatomy and physiology are admissible to any one part only of the examination; on the completion of 30 months' study they are admissible to one or two further parts, or to three parts if presenting themselves for the first time. Candidates may not enter for the last part of the examination until they have completed 33 months' clinical study.

The Scottish Conjoint Board furnishes the triple qualification of the Royal Colleges of Physicians and of Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow (L.R.C.P.&S.Edin., L.R.F.P.S.Glasg.). These three bodies have an arrangement by which, after one series of examinations, students may obtain the diploma. Each of the bodies grants its single diploma after examination, but this does not confer the right to qualifying registration. Professional study embraces a certified period of not less than five academic years, in the last three of which clinical subjects must be studied. The first examination embraces physics, chemistry, and biology; the second, anatomy and embryology, and physiology, biochemistry, and biophysics; and the third, pathology, materia medica, and pharmacology. The final examination is in two parts: the first, forensic medicine and public health; and the second, medicine, surgery, and obstetrics and gynaecology. Candidates for the Scottish Conjoint may work at any of the medical schools of Great Britain and Ireland. Details may be obtained from the Registrar, 18, Nicolson Street, Edinburgh, 8.

A joint licence in medicine, surgery, and midwifery is issued by the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland (L.R.C.P.I. & L.M., L.R.C.S.I. & L.M.). Candidates are accepted from most of the medical schools at home and overseas. The regulations are to be obtained from the secretary of the Conjoint Board, Royal College of Surgeons, St. Stephen's Green, Dublin.

Other Registrable Diplomas

The Society of Apothecaries of London (Apothecaries' Hall, Blackfriars Lane, London, E.C.4), which was constituted by the Royal Charter of James I in 1617, confers a diploma registrable under the Medical Act, 1886 (L.M.S.S.A.Lond.). Examinations for the final subjects are held monthly, except in September. Examinations in anatomy, physiology, and materia medica are held in January, April, July, and October.

The licentiateship of the Apothecaries' Hall of Ireland (95, Merrion Square, Dublin) (L.A.H.Dubl.) also entitles to registration under the Medical Act, 1886. It enables the holder to practise pharmacy as well as medicine, surgery, and midwifery, which means that he may, if he so desires, open a medical hall.

Diplomas in medicine and surgery registrable in the Commonwealth List, pursuant to Part II of the Medical Act, 1886, are granted by the Universities of Sydney, Queensland, Adelaide, and Melbourne, Ceylon Medical College, University of Ceylon, University of Hong Kong, Royal University of Malta, Newfoundland Medical Board, University of New Zealand, the Universities of South Africa, Capetown, and the Witwatersrand, the King Edward VII College of Medicine, Singapore, and the University of Malaya. Under certain conditions diplomas in the several provinces of Canada are registrable; also, with some exceptions and subject to dating, the Universities of India, the Punjab University, Pakistan, and the University of Rangoon (see Tables F, G, and H of the *Medical Register*).

POSTGRADUATE EDUCATION IN LONDON

Facilities for postgraduate education, which only a few years ago were casual and unorganized, now grow towards completeness year by year. In London this is largely due to the British Postgraduate Medical Federation, which is a school of the University, and comprises the Postgraduate Medical School at Hammersmith Hospital and 12 institutes in a number of branches of medicine and surgery associated with special hospitals. These institutes, some account of which is given below, are in various stages of development, and the number of students who can be admitted to the clinical practice of some of the hospitals is limited. Resident clinical appointments are available in the teaching hospitals to suitable students of the institutes, and there are opportunities for research by selected graduates.

At all the institutes courses of instruction are given throughout the academic year; they are suitable for graduates in the early stages of their specialist education and also for those who have completed their practical training. Two or more years of hospital work in general medicine and general surgery after graduation are normally advisable before beginning work in the special branches. The work at the institutes is of an advanced type and is comprehensive enough to enable graduates with suitable practical experience to prepare for higher degrees and diplomas. Emphasis is placed on clinical and laboratory teaching, supplemented by lectures and demonstrations.

Joint Board of Postgraduate Federation and Royal Colleges

For the purpose of providing postgraduate education in the medical and dental specialties in London, supplementing the provisions at the undergraduate medical schools and teaching hospitals, a joint board has been established in which the British Postgraduate Medical Federation and the three Royal Colleges collaborate. Each of the three Royal Colleges arranges courses of lectures in the clinical aspects of its specialties, and the Royal College of Surgeons provides in addition courses of lectures and demonstrations in the basic sciences for potential surgical and dental specialists and in anaesthetics. Each Royal College provides expert advice and guidance on suitable hospital appointments and programmes of study for candidates for its higher qualifications and for graduates visiting this country for further study. The Federation, the services of whose staff at its central office (3, Gordon Square, W.C.1) are available to all postgraduates, is arranging a second series of advanced lectures entitled "The Scientific Basis of Medicine," to be delivered on two afternoons a week at the London School of Hygiene and Tropical Medicine during the autumn and winter terms of the 1951–2 session. The lectures are designed especially for research workers and specialists in training, but are open to all registered medical practitioners without fee.

Two new institutes are proposed. One is an Institute of Basic Medical Sciences. It has been agreed by the Federation and the Royal College of Surgeons to constitute as such an institute the departments of anatomy, physiology, and pathology, and (when established) the department of pharmacology of the Royal College. The other is an Institute of Cancer Research. As a result of discussions between the Ministry of Health, the Medical Research Council, and the University of London, on the question of financing the research work carried on at the Royal Cancer Hospital, it has been decided to constitute such an institute within the Federation, consisting of the Chester Beatty Institute, Pollards Wood Research Station, and the physics and radiotherapeutic departments and other research activities of the hospital. The institute will be financed mainly by the Medical Research Council.

Specialist Institutes

Brief particulars of the Postgraduate Medical School and of the Institutes are appended:

The Postgraduate Medical School of London (associated with Hammersmith Hospital, Ducane Road, W.12).—University departments in medicine, surgery, and pathology. Teaching in clinical departments, based on ward work, continuous and supplemented by lectures during the three 10-weeks terms starting in January, April, and October. Course for the university diploma in clinical pathology, lasting one year, available for limited number of selected students. Department of radiology of hospital provides courses for the D.M.R. of the University of London and Conjoint Board. Long-term and short-term tuition in anaesthetics provided for a small number of students.

Institute of Cardiology (associated with National Heart Hospital, Westmoreland Street, W.1).—Seven appointments of registrar type offered each year to physicians in training as cardiologists who already have a sound grounding in general medicine. General physicians may enrol for full- or part-time instruction for one term. Three terms annually, beginning in January, May, and October. Three intensive fortnight courses of lectures and demonstrations held in February, June, and November.

Institute of Child Health (associated with Hospital for Sick Children, Great Ormond Street, W.C.1, Postgraduate Medical School at Hammersmith, and Queen Elizabeth Hospital for Children, Hackney).—Tuition provided throughout year in three terms beginning January, May, and September. Series of lectures by specialists and experts given each term.

Institute of Dermatology (associated with St. John's Hospital for Diseases of the Skin, Lisle Street, W.C.2).—Clinical teaching in out-patient department twice daily. Facilities for study and tuition in pathology (including mycology), radiotherapy, physiotherapy, and clinical photography. Short courses of lectures given in summer months and longer and more systematic course in winter. Courses of clinical demonstrations given for candidates for higher diplomas and degrees.

Institute of Diseases of the Chest (associated with Brompton Hospital and London Chest Hospital).—Students may enrol for one term or more on an approximately half-time course, and arrangements are made for students who intend to specialize in diseases of the chest to attend a whole-time comprehensive course during the two terms beginning in October and January. During the summer term there is a full-time advanced revision course. A small number of students with adequate experience can be accepted for training in thoracic surgery.

Institute of Laryngology and Otology (associated with Royal National Throat, Nose, and Ear Hospital, Gray's Inn Road, W.C.1).—Comprehensive full-time course lasting eight months held twice a year, beginning in February and September, the first three months being devoted to a study of the basic sciences of the specialty, and the following five months to clinical aspects. Part-time advanced revision course lasting 10 to 12 weeks, suitable for students preparing for higher qualifications, held twice yearly. A number of appointments open to students, after completion of basic training in the specialty.

Institute of Neurology (associated with the National Hospital for Nervous Diseases and the Maida Vale Hospital).—Teaching mainly by attendance on hospital practice, supplemented by lectures and demonstrations. Two whole-time courses in clinical neurology held annually, beginning January and October, and a course in neurosurgery, beginning in May. Courses of weekly clinical demonstrations are held regularly three times a year. More advanced students appointed as clinical clerks in the wards or attached to special departments and research laboratories.

Institute of Obstetrics and Gynaecology (associated with Queen Charlotte's Maternity Hospital, Chelsea Hospital for Women, and Department of Obstetrics and Gynaecology at Postgraduate Medical School).—Teaching based on ward work, supplemented by lectures and demonstrations during two terms of three months' duration, beginning in March and September. Short intensive courses of a fortnight's duration, held in June and December each year, suitable for students preparing for higher qualifications.

Institute of Ophthalmology (associated with the Moorfields, Westminster, and Central Eye Hospital).—In addition to teaching by attendance on hospital practice, routine lecture and tutorial course lasting four to five months held twice a year, beginning March and October. Clinical teaching and lectures at higher level for advanced students. Facilities for research for suitably qualified candidates.

Institute of Orthopaedics (associated with Royal National Orthopaedic Hospital, Great Portland Street, W.1).—Complete training in orthopaedics to selected graduates already trained in general surgery and basic sciences is afforded by means of clinical appointments covering two to three years, with opportunities for research. For graduates requiring a less extensive period of education in the specialty, and those who have acquired practical experience overseas or elsewhere, a series of advanced courses

is held each year, beginning in October. These are of seven to ten days' duration. Twice a year a short revision course of a week's duration in advanced clinical orthopaedics.

Institute of Psychiatry (in association with Maudsley Hospital and Bethlem Royal Hospital).—Training normally covers two to three years after experience elsewhere in general medicine. Postgraduates may follow a course of study for the Academic Postgraduate Diploma in Psychological Medicine of the University of London and for the D.P.M. of the Conjoint Board. Regular series of lectures and demonstrations given throughout each of the university terms. Clinical training continues throughout year and includes seminars and case discussions. Facilities for original investigations under supervision in the clinical departments and in the psychological, neuro-anatomical, electrophysiological, and biochemical departments.

Institute of Urology (associated with St. Peter's and St. Paul's Hospital, Henrietta Street, W.C.2).—Comprehensive instruction in wards, out-patient departments, operating theatres, and laboratories. Full-time clinical clerkships available for 10-week periods beginning January, April, and October. Short courses of a fortnight's duration are held. Courses in venereology, each lasting two months, held at intervals.

Institute of Dental Surgery (associated with Eastman Dental Hospital, Gray's Inn Road, W.C.1).—Object of Institute is to train dental practitioners in the special branches of preventive and therapeutic dentistry, both for children and adults, by means of clinical experience, lectures, demonstrations, and research.

Postgraduates who wish to take these courses should make arrangements well in advance. First consideration in allotment to vacancies is given to those sponsored by their universities, Governments, and other official bodies. Established specialists from overseas, who are here for a relatively short time and wish to see something of the practice of this country, are always welcome. Refresher courses and other forms of continuing education for general practitioners are arranged at hospitals throughout the four Metropolitan regions, with the assistance of regional advisers in postgraduate medical education.

A number of the London medical schools provide full-time advanced revision courses in surgery. At the London Hospital Medical College an annual course in advanced medicine is held at the beginning of January and a course in advanced surgery in March, each limited to 24 postgraduates.

The North London Postgraduate Medical Institute (Prince of Wales's General Hospital, N.15) holds courses in advanced medicine, advanced surgery, and obstetrics and gynaecology, and instruction is given in pathology, anaesthetics, and radiodiagnosis. Clinical instruction is given at the Prince of Wales's Hospital and at Bearsted Memorial Hospital, Chase Farm Hospital, North Middlesex Hospital, and St. Ann's General Hospital. During the coming year there will be eight-weeks courses in advanced medicine suitable for those taking the M.R.C.P. examination, similar courses in advanced surgery for those taking the F.R.C.S., and two-weeks courses for those taking the D.Obst.R.C.O.G.

An important feature of the postgraduate facilities in London is the advanced lectures given under the auspices of the three Royal Colleges, and in the case of the Royal College of Surgeons the practical demonstrations in anatomy, applied physiology, and pathology.

Fellowship of Postgraduate Medicine

The Fellowship of Postgraduate Medicine (now moved to 60, Portland Place, W.1) provides general information on postgraduate work, and arranges courses for, though not restricted to, candidates for the higher degrees. These include general medicine, general surgery, neurology, neuro-ophthalmology, proctology, obstetrics, and children's diseases. Some are full-time courses lasting from one to two weeks; others are spread over longer periods and are intended particularly for postgraduates who are not free for full-time study. The Fellowship also arranges week-end courses, occupying the whole of a Saturday and Sunday. These are given in various hospitals, and include such subjects as general surgery, general medicine, orthopaedics, rheumatic diseases, and infectious diseases.

POSTGRADUATE EDUCATION OUTSIDE LONDON

Facilities at Oxford

A school of clinical research and postgraduate studies has been in existence at Oxford since 1936. It has developed gradually and now consists of the Nuffield Departments of Medicine, Surgery (including Neurosurgery), Obstetrics and Gynaecology, Anaesthetics, Orthopaedics, and Plastic Surgery, each with a whole-time professor, a first assistant, and an appropriate research and clinical staff. Certain of the clinical appointments on the staffs of these departments are available for specialist-trainees from Great Britain, the Dominions, and the Colonies. The staffs take part in the teaching both of undergraduates and of postgraduates.

In addition to the provision made in these departments for the training of specialists, there are a number of trainee appointments in the teaching hospitals (the United Oxford Hospitals) and in certain departments of selected non-teaching hospitals of the Oxford Region. These appointments (registrars and senior registrars) are in the following branches of medicine: general medicine, paediatrics, psychological medicine, geriatrics, chest diseases, pathology, biochemistry, general surgery, orthopaedics, accident services, otolaryngology, ophthalmology, obstetrics and gynaecology, dental surgery, and radiology and radiotherapy.

Arrangements for General Practitioners

The facilities for postgraduate education for general practitioners are designed to provide regular contacts with consultants and specialists on the staffs of the hospitals, and with work based on latest knowledge. The arrangements vary in the teaching hospitals (Oxford) and in the non-teaching hospitals (Reading, Northampton, Aylesbury) at which these facilities are provided.

All departments of the teaching hospitals at Oxford are open to general practitioners on certain days and at certain times throughout the postgraduate year (September to July). On every day of the week (except Sundays) there are morning and afternoon sessions at which instruction is given to general practitioners and other postgraduates by consultants and specialists. The programme includes ward rounds, clinical demonstrations, conferences, out-patients clinics, lectures, and attendance on the accident service. Here is an extract from the programme relating to three of the subjects:

Medicine ..	Ward rounds ..	M. to F., 10.15 a.m., Radcliffe.
		F., 11 a.m., Churchill.
	Medical Concilia ..	W., 5 p.m. (alt. wks.), Radcliffe.
	Clin. demonstrations	Th., 2.15 p.m., Radcliffe.
Clinico-pathology	Conferences ..	W., 5 p.m., Radcliffe (alt. wks. in full term).
Chest diseases ..	Clin. demonstrations	M., 2 and 3 p.m., Osler Pavilion.

And so on for 17 other subjects. Practitioners may attend any of these sessions at times and on occasions convenient to themselves. They may take either an intensive course of a week or a fortnight or an extended course over a number of weeks or months.

The University does not limit the number of sessions a practitioner may attend to a maximum of 22, though claims for the payment of fees by the Ministry of Health on account of National Health Service practitioners are limited to that maximum. Fees are payable for attendance at any number of sessions from a minimum of three to a maximum of 22. Assistants to general practitioners who are not eligible for a grant from the Ministry of Health are permitted to avail themselves of any or all of these postgraduate facilities, without payment of fees, on application being made to the director of postgraduate medical studies. Practitioners who are not members of the National Health Service and doctors

from overseas desiring to avail themselves of these facilities pay their own fees at the rates prescribed for N.H.S. practitioners.

In addition to these facilities short courses in special subjects are arranged for general practitioners. From September to July these include special courses in obstetrics, diabetes, paediatrics, social and preventive medicine, and modern therapeutics, among others. The postgraduate arrangements for general practitioners at Northampton and Aylesbury take the form of short courses in special subjects, one afternoon session a week for from three to six weeks. At Reading one afternoon session a week throughout the year is devoted to clinical demonstrations in surgery, medicine, paediatrics, and obstetrics and gynaecology, but these demonstrations are not held if fewer than six practitioners apply to attend them. The address of the Postgraduate Medical Education Committee is 91, Banbury Road, Oxford.

Facilities at Cambridge

Postgraduate sessions in the way of ward rounds and outpatients clinics are available to general practitioners in all departments of the United Cambridge Hospitals on regular days of the month between October and July in each year. A small number of undergraduate students are admitted to these teaching sessions, but the facilities as yet are limited. Other teaching activities include a monthly clinico-pathological conference, which affords an opportunity for practitioners to meet the staffs of the hospital and of the various departments of the Medical School. One-day symposia on set subjects, held each month, have also proved popular. All postgraduate courses are open, without fee, under a scheme of the Ministry of Health, to practitioners who are under contract with an executive council.

The University department of human oecology at Cambridge, which includes the University Health Service, has moved to a new building at Fenner's, and is engaged upon research and teaching in the social aspects of disease, epidemiology, medical statistics, and medical genetics. The department of radiotherapeutics has pursued research work designed to improve the treatment of cancer and allied diseases by the combined use of radiotherapy and chemotherapeutic agents. The department of experimental medicine has carried out studies on various aspects of undernutrition—notably oedema, renal function, and skin conditions.

Postgraduate Courses at Liverpool

In the University of Liverpool postgraduate facilities are available in the shape of full-time courses in surgery, orthopaedics, radiology, anaesthesia, and public health, and (in the Liverpool School of Tropical Medicine) in tropical medicine and hygiene. It is hoped to hold a series of refresher courses on suitable subjects for general practitioners, each course consisting of one session a week for three weeks, the whole series extending over eight months. About 10 of these three-sessional courses will be arranged if the response from the practitioners of the region shows that there is a desire on their part for such a scheme.

The full-time course in surgery in Liverpool is a one-year course suitable for candidates who have already completed the primary examination of the F.R.C.S. or undertaken postgraduate study in anatomy and physiology, instruction in which subjects is not included in the course. On completion of the course students become eligible to take the examination leading to the Mastership of Surgery (Ch.M.) of the University, provided they are medical graduates of approved universities or graduates in other faculties with qualifications in medicine. The fee for the course, which begins in September, is £60.

In radiology there is a full-time course of two academic sessions leading to the D.M.R.(D. or T.), which can be taken in radiodiagnosis or radiotherapy, open to medical graduates of approved universities and to medically qualified candidates who hold approved higher medical diplomas and a degree in a faculty other than medicine. The fee for the full two-year course is £63. The fee for the full-time 12-months course in orthopaedic surgery is £70. The course begins normally in January. A course in anaesthesia, limited to 10 students, begins in October and lasts for one year. This course, the fee for which is £60, has been accepted by the Conjoint Board of England as fulfilling the requirements of candidates for the Diploma in Anaesthetics. Further information may be obtained from the Dean of the Faculty of Medicine, the University, Liverpool, 3.

Other Postgraduate Centres

We cannot hope to give a complete list of the courses of postgraduate instruction held at all the universities and colleges in the United Kingdom. They follow the same general pattern, with local adaptations. At Manchester the new regulations for the Manchester Diploma in Psychological Medicine have come into force, and courses have again been held for the D.M.R.(D. or T.) of the Conjoint Board. An experiment has also been made in Manchester in the shape of a refresher course in obstetrics for general practitioners, the instruction being given on one day a week over a period of 12 weeks. After the success of this course, an introductory course in industrial health was given in the summer term, and a similar course in paediatrics is to be held in the autumn.

At Sheffield weekly ward rounds for general practitioners are being conducted in the United Sheffield Hospitals and the City General Hospital. A series of lectures on "Common Problems in Children" has been provided; there has been a course in industrial medicine, spread over two week-ends, and a one-day course on recent developments in relation to rheumatism is being arranged. No diplomas in radiology are awarded by the Sheffield University, but courses in preparation for the D.M.R.(D. & T.) of the Conjoint Board continue to be available, and, although numbers have recently been insufficient to justify the organization of definite "courses" in preparation for the M.R.C.P. or F.R.C.S., instruction at an appropriate level may be provided, by arrangement, for approved candidates. The Postgraduate Committee at Sheffield has continued to give much thought to the problems presented by the education of the registrar, especially in view of recent ministerial edicts on the subject, as well as to the arrangements that will require to be made when the provisions of the Medical Act, 1950, in relation to pre-registration house appointments are implemented; but the announcement of plans concerning either of these subjects must clearly await further declaration of policy from the centre.

At Bristol there has been no change in the postgraduate facilities offered since last year, and the same is broadly true of the special courses at Birmingham, Leeds, and elsewhere.

In Scotland, at Glasgow University, various types of postgraduate instruction are available, in the form both of individual clinical attachments and of organized courses. The Postgraduate Medical Education Committee proposes to offer the following courses during the ensuing session. An eight-weeks part-time course of instruction in anatomy, physiology, biochemistry, pathology, and bacteriology will be held from October to December. The course is designed for candidates preparing for the primary examinations of the surgical fellowships and will provide a total of approximately 160 hours' instruction. Although organized primarily for the junior staff of hospitals in the Western Region of Scotland, the course is also open to other applicants. Where possible, an honorary part-time clinical attachment is arranged for members of the course who have no hospital appointment. The short full-time courses in child health and in mental deficiency which were held last year will be repeated this autumn. Courses in other specialties will be arranged if the demand arises. Refresher courses for general practitioners are held in Glasgow from time to time; these consist largely of clinical demonstrations, but

include a few lectures on modern methods of therapy. All inquiries should be addressed to the Director of Postgraduate Medical Education at the Glasgow University.

The Edinburgh Postgraduate Board of Medicine (at Surgeons' Hall, Edinburgh, 8) has arranged the same courses as in previous years. These include courses of advanced instruction in general medicine and in general surgery, and courses in anatomy, physiology, and pathology, and a course in psychiatry. Some further information is given under the heading of "Higher Qualifications." The refresher course at Edinburgh for general practitioners is at present held only once a year, in the early summer.

Queen's University, Belfast, arranges a refresher course for general practitioners. A monthly refresher course in diseases of children has been given in the Royal Belfast Hospital for Sick Children for eight months.

COURSES IN PSYCHIATRY

A full training in psychiatry is obtainable in London at the Institute of Psychiatry, associated with the Maudsley Hospital and Bethlem Royal Hospital. Basic training normally covers a period of three years after adequate experience elsewhere in general medicine, and is based on responsible clinical work under supervision. The aim is to provide a wide training in the many branches of clinical psychiatry and its basic sciences. An academic postgraduate diploma in psychological medicine, the training for which lasts three years, has been instituted by the University of London. The course of study for this diploma (and for the Diploma in Psychological Medicine of the Conjoint Board) may be followed either by fee-paying students of the Institute or by holders of junior staff medical appointments in the joint hospital.

The Maudsley Hospital and Bethlem Royal Hospital have vacancies available each quarter for registrars and house officers. The fees payable by those who attend the teaching at the Institute of Psychiatry without holding hospital appointments are: for clinical instruction only, 10 guineas for three months, 15 guineas for six months, and 20 guineas for 12 months; for clinical instruction and all first- or second-year lecture and demonstration courses, 20 guineas for one term, and 50 guineas for one year; and for first- or second-year lecture and demonstration courses only, 12 guineas for one term, and 30 guineas for one year. The enrolment fee is £1. By arrangement with certain regional authorities, trainees in psychiatry holding posts at mental hospitals in the region are granted a reduction in fees. Fuller information may be obtained from the Dean, Maudsley Hospital, Denmark Hill, S.E.5.

The National Association for Mental Health (39, Queen Anne Street, W.1) arranges training courses in child psychiatry. Fellowships are given to enable qualified psychiatrists to obtain special training in child guidance at a recognized training clinic, and these are tenable at a number of clinics in Great Britain. The Association also runs a number of other courses, especially for those whose work is among the subnormal and the mentally defective.

The Tavistock Clinic (2–4, Beaumont Street, London, W.1) is an out-patient clinic comprising two departments—the adult department for the out-patient treatment of patients with neurotic and personality disorders, and the child guidance department for the treatment of maladjusted children and for helping their parents. A number of registrar appointments in both departments provide systematic training in adult psychotherapy and child psychiatry. The Clinic also offers postgraduate extramural courses for psychiatrists as follows: a two-year course in the principles of psychotherapy and psychopathology, with special reference to groups (adults); for general practitioners there is a weekly discussion group on the principles of psychological medicine. In addition there is elementary and advanced training in the Rorschach method (open to psychiatrists), as well as general courses of training for clinical and educational psychologists, child psychotherapists, social workers, and speech therapists. Full particulars may be obtained from the Training Secretary.

The Institute of Psycho-Analysis (63, New Cavendish Street, W.1) furnishes a part-time course, lasting about four years, in psycho-analytic theory and technique. It includes a personal analysis, attendance at lectures and seminars, and clinical work under supervision. The Institute does not set out to teach all aspects of psychiatry, and general psychiatric experience must be obtained at other clinics and hospitals.

Courses in psychiatry are given at the various universities. At Edinburgh an intensive five weeks' course will begin in October in preparation for the Diploma in Psychiatry examinations in December and April. While this course is primarily intended for persons who are registered as candidates for the University diploma, it is open to others who may be interested to apply for permission to attend.

In the University of Durham it is hoped to begin the course for Part I of the Diploma in Psychological Medicine during the next session, provided there are a sufficient number of applicants.

MEDICAL VISITORS FROM OVERSEAS

During the last three years the Council of the British Medical Association has set up at Headquarters in Tavistock Square, London, two organizations, the one for welcoming and providing a personal advisory service for practitioners visiting this country from the Dominions and Colonies and the other for a similar function for practitioners from countries outside the British Commonwealth.

The Empire Medical Advisory Bureau invites all medical visitors from Commonwealth countries to get in touch with it as soon as possible after arrival and talk over with the Medical Director (Dr. H. A. Sandiford) any points on which they may need advice or assistance. During its first three years nearly 2,400 visitors have made use of the services of the Bureau, and nearly 1,400 new visitors have paid an average of two visits. Detailed information is available at the Bureau on postgraduate education facilities and on the courses of study necessary for higher qualifications. The Bureau is in close touch with the British Postgraduate Medical Federation and other organizations and authorities concerned with postgraduate work, and, when required, the necessary contacts and introductions can be effected. The visitor who wishes to see something of the latest medical and surgical techniques can be put in touch with the appropriate experts.

A register of suitable hotels and lodgings is maintained by the Bureau. Social functions are held at intervals, and practitioners from the Dominions and Colonies are enabled to meet each other and members of the profession in this country. A number of doctors have notified the Bureau of their wish to entertain overseas visitors, usually for week-ends, in their homes. General information is afforded by the Bureau concerning rationing, Customs duties, facilities for sport and travel, exhibitions, and the like. Visitors are asked to give as long notice as possible of their intended visit, and their date of arrival, mode of travel, and period of stay. A letter of introduction from the local honorary secretary of their medical association, whilst not essential, would be welcome and might be useful if references are required when taking furnished flats.

The International Medical Visitors Bureau is a more recent development, also located at B.M.A. House, Tavistock Square, W.C.1. Information is obtainable on postgraduate education facilities, visits to hospitals and clinics are arranged, assistance is given in finding accommodation, and general information is afforded on travel and other matters.

The Medical Director of both Bureaux is Dr. H. A. Sandiford, to whom all communications should be addressed.

MEDICAL AUXILIARY SERVICES

During the year the report of the Cope Committee has been published, recommending the setting up of a statutory register for medical auxiliaries employed in the National Health Service. Until such recommendations are implemented the Board of Registration of Medical Auxiliaries (B.M.A. House, Tavistock Square, W.C.1) will continue to function. It was principally at the instance of the British Medical Association that the Board was formed, having in view the desirability of a national register of trained persons engaged in technical work or practice ancillary to that of the medical profession.

The register comprises many thousands of names, and includes radiographers, dispensing opticians, chiropodists, speech therapists, orthoptists, dietitians, physiotherapists, and biophysical assistants. The Board, the majority of whose members are members of the medical profession, is a registering and disciplinary body, but not an examining one. Examining bodies in the various branches are approved by the Board and appoint representatives to its council.

The function of the Board is to co-ordinate the work of these various auxiliaries, to ensure that they are qualified, to maintain and improve their standard of training, and to afford liaison between them and medical practitioners. All those whose names appear on the register hold a qualification in their particular sphere recognized and approved by the Board. With the exception of the chiropodists, all on the register, as a condition of admission, undertake not to carry out any medical auxiliary work except under the direction and control of a medical practitioner. The chiropodists, while not acting under medical direction, confine their practice to the treatment of malformed nails, superficial excrescences on the feet, etc.

The qualifying bodies for the respective branches are the Society of Radiographers, the Association of Dispensing Opticians, the Society of Chiropodists, the College of Speech Therapists, the British Orthoptic Society, and the British Dietetic Association. All of them impose established periods of training. That for the radiographers, for example, is two years at a recognized training centre, and for speech therapists a three years' full-time course at a recognized school.

The Chartered Society of Physiotherapy (Tavistock House North, W.C.1) maintains its own national register and approves schools for training and examinations.

MEDICAL BRANCH OF THE ROYAL AIR FORCE

The Medical Branch of the Royal Air Force employs men and women doctors and provides a great variety of professional activities under favourable conditions. In addition there is scope for the exercise of non-professional interests both in work and in recreation and there is sufficient leisure for sport and further study.

Types of Medical Work

Medical officers serve at three main types of station—flying, training, and maintenance—and also at hospitals and other medical units. Most of the training establishments are for technical training and offer opportunities in industrial medicine. Others carry out recruit training and present medical problems associated with rapidly shifting populations having inadequate "herd" immunity. Maintenance units deal with the supply, preservation, repair, and salvage of stores and materials. Many industrial processes are used and medical care calls for a knowledge of industrial health.

The station medical officer is responsible to his commanding officer for the medical care of the station. His prime duty is the promotion of health. In addition to the care of airmen and airwomen he supervises the station hygiene and sanitation. He also undertakes the medical indoctrination of air crews, the further training of his medical staff, the general first-aid and kindred training of the entire station, the administration of his sick-quarters, and the maintenance of records.

Service families may elect to go on his list as National Health Service patients. This gives him not only the medical care of women and children but also the chance to do clinic and welfare work.

Hospitals and Other Medical Units.—Service hospitals provide a full range of facilities for diagnosis and treatment, both in-patient and out-patient. There are also fully equipped medical rehabilitation units. The training of newly entered medical officers and of medical airmen and airwomen (initial, advanced, and specialist training) is carried out by a medical staff at the R.A.F. Medical and Dental Training Establishment. There are also certain specialized medical units. These are the Central Medical Establishment with a panel of consultants and facilities for boards and specialist medical examinations, the R.A.F. Institute of Pathology and Tropical Medicine, and the R.A.F. Institute of Aviation Medicine. The latter undertakes whole-time research into the medical problems of aviation. Appropriate research is also undertaken at the other two institutions.

Other Medical Activities

A number of medical officers learn to fly; advanced types of aircraft are included. They are subsequently employed on flying duties in connexion with research or the medical care of air crews. Others are specially trained in the medical problems associated with modern aircraft flying. Medical officers in certain units participate in mountain-rescue operations. A number of courses are open to medical officers, ranging from radiological defence to parachuting.

Overseas Tours.—The length of an overseas tour is two and a half years except for Iraq and Aden, where it is two years. The Royal Air Force has stations in Germany, Malta, Cyprus, Egypt, North Africa, East Africa, Rhodesia, Iraq, Aden, Ceylon, Malaya, and Hong Kong. A permanent officer can expect to spend about one-third of his service overseas.

Careers in the Service

Permanent officers may make a career in administration or in a specialty; the latter may be clinical or non-clinical. The major clinical specialties are medicine, surgery, orthopaedics, anaesthetics, ophthalmology, oto-rhino-laryngology, pathology and tropical medicine, radiology, and neuropsychiatry. The non-clinical specialties are aviation medicine and the medical care of air crews and hygiene. An officer selected for specialist training is given every help and opportunity to enable him to gain higher qualifications. A year's study leave on full pay and allowances is available both to specialists and to administrators. The latter normally take one or more of the following diplomas: D.P.H., D.I.H., D.T.M.&H. Some, however, take a clinical diploma and subsequently combine administration with clinical work.

Non-professional Work

Medical officers take their share of non-professional duties, such as the management of officers', N.C.O.s', and airmen's messes, airmen's welfare, and station recreation and clubs. This work brings them into close contact with those under them and provides a variety of experience extending from man-management to accounting and book-keeping.

Sports and Recreation.—The Royal Air Force has most extensive facilities for sports and recreation. All except the smallest stations have their own sports grounds and facilities for clubs and the pursuit of hobbies. In addition there are some 25 R.A.F. Sports Associations, including the more usual sports such as cricket, football, and hockey, and such activities as gliding and soaring, rowing, equitation, mountaineering, and winter sports.

THE ARMY MEDICAL OFFICER

Careers in the R.A.M.C.

The Royal Army Medical Corps offers to well-qualified medical men a satisfactory career, with good opportunities for practice and specialization in many subjects, reasonable pay, good prospects of promotion, and, for those granted a regular commission, an adequate pension. Entry, in the first instance, is by means of a short-service commission, and subsequently by selection to a regular commission on completion of six months' combined national service and short service.

Short-service Commissions

Appointment to a short-service commission will be in the rank of lieutenant with promotion to captain on completion of one year's service as medical officer. All previous full-pay service as a medical officer counts for promotion. Candidates must be registered under the Medical Acts, be British subjects or citizens of the Irish Republic, and should normally be under the age of 45 years. Commissions are for a period of eight years from date of appointment, of which any period from two to eight years may be spent on the Active List and the balance on the Regular Army Reserve of Officers. Civilians liable for service under the National Service Acts will not be accepted for less than four years on the Active List. Extensions of one or more years may be granted during the Active List period, provided that the period on the Active List does not exceed eight years. Short-service commission officers are eligible for an antedate up to a maximum period of two years for civil experience in the hospital field. This will not count as service for promotion to captain, but it will, on such promotion, count for increments of pay in that rank and for promotion to major.

Short-service commission officers appointed for four or more years' service on the Active List will, after completion of six months' service, if suitable, and if they so desire, be considered for specialist training in anaesthetics, Army health, dermatology, ophthalmology, pathology, psychiatry, surgery, and other fields.

On completion of the Active List period of their short-service commission, those not selected for or not desiring a regular commission will be eligible for a gratuity of £240 for two years' service, £450 for three years' service, plus £150 a year for each year's completed service over three years. Applicants appointed to short-service commissions within twelve months of leaving superannuable employment as medical practitioners on the staff of an employing authority under the National Health Service may, at their own option, continue to pay contributions during the Active list period of their short-service commissions and thus preserve their superannuation position under the N.H.S.

Regular Commissions

Short-service officers on completion of six months' total service as medical officers may apply for appointment to a regular commission. Those who are granted regular commissions will reckon the Active List period of their short-service commission and other service towards ultimate retired pay or service gratuity on the regular officer's scale, but they are not entitled to any short-service gratuity.

All regular officers between the fourth and tenth year of service are given a five months' course of postgraduate study at the Royal Army Medical College, London, and in London hospitals. This is followed by a year's course of study in a special subject selected by the officer himself, provided he has shown special aptitude in his postgraduate course or during his previous service. In the course of this study he remains on full pay, and the fees for the course are paid by the State.

Promotion to major is on completion of eight years' total commissioned service as a medical officer, but promotion to the higher ranks is by selection and is dependent on vacancies. All previous full-pay service as a medical officer counts for promotion. A regular officer is permitted to resign or retire voluntarily at any time with the approval of the Army Council. His retirement is compulsory at ages varying from 53 to 60, according to the rank he holds at the time of his retirement. Very few need retire before the age of 57. The rates of retired pay payable to medical officers holding regular commissions vary from £500 if retiring as a major to £1,200 a year if retiring as a major-general. In addition a terminal grant of £1,000 will be awarded on completion of 20 years' reckonable service. The grant of retired pay to regular officers retired otherwise than as invalids is normally conditional upon completion of 20 years' service. For invalided officers completion of 10 years' service is necessary.

Gratuities at the following rates are payable to regular officers who, on retirement, have completed insufficient service to qualify for the grant of retired pay:

	£
On completion of 10 years' service	1,000
For each complete year of service in excess of 10 years, a further	150
Maximum total gratuity	2,350

Pensions may be granted to the widows, and compassionate allowances to the children, of officers dying either on the Active or Retired List. A gratuity may also be granted in addition to pension to the widow of an officer who was killed in action or died of wounds received in action. In certain circumstances pensions are payable to dependent parents or brothers or sisters of an officer who leaves neither widow nor child, and whose death is directly attributable to service.

Further details may be obtained from the Under-Secretary of State, War Office (AMD 1), London, S.W.1, and a personal interview with a representative of the Director-General, Army Medical Services, is readily available at Lansdowne House (Room 130), Berkeley Square, London, W.1 (Telephone, GROsvenor 8040, ext. 548).

On the nomination of the Central Medical War Committee doctors are appointed to National Service Commissions in the R.A.M.C. in the rank of lieutenant. During their period of National Service they can apply for a short-service commission and can subsequently be considered for a regular commission.

Professional Training of Army Medical Officers

All medical officers commissioned into the R.A.M.C. receive postgraduate professional training at the Royal Army Medical College, Millbank, London, S.W.1. The College has a director of studies and a tutorial staff for the teaching of Army health, military surgery, tropical medicine, psychiatry, radiology, dermatology, venereology, and entomology. The Queen Alexandra Military Hospital, Millbank, also provides clinical instruction, tutorials, and demonstrations.

At the College newly commissioned lieutenants on first appointment are given an introduction to the clinical problems and procedures peculiar to military service in both temperate and tropical climates. Short-service officers are required to take the first part of the senior officer's course.

Regular R.A.M.C. officers between the sixth and thirteenth years of service pass through the senior officers' postgraduate course of professional studies. This course, divided into two parts, lasts for approximately five months. The first part, of 10 weeks' duration, includes revision in Army health, military surgery, tropical medicine and entomology, pathology, and psychiatry. The second part, which lasts for three months, consists of demonstrations and tutorials in clinical medicine and surgery, dermatology, and venereology. Officers who qualify at the end of this course and who are recommended by the College council are eligible for twelve months' individual advanced study for different specialties at approved university medical centres.

The Department of Army Health at the College, in addition to the teaching of military hygiene, provides facilities for special study in the maintenance and enhancement of the

health of the Army. It has laboratories for instruction in chemistry as applied to hygiene and also in biochemistry, and there is an instructive and well-equipped hygiene museum. Officers intending to specialize and become Army health officers are given the opportunity of taking the D.P.H. during their specialist course, and are assisted in obtaining their D.T.M.&H.

The Department of Military Surgery gives instruction in the principles and practice of up-to-date military surgery. The syllabus includes the surgery of tropical diseases and the management of surgical conditions peculiar to service both at home and abroad.

The Department of Tropical Medicine provides instruction and clinical demonstrations in tropical medicine, particularly in those diseases to which Service personnel and their families are exposed in tropical areas.

The Entomology Department gives instruction in applied entomology, and research is carried out on insecticides and methods of pest control.

The Department of Pathology provides lectures, demonstrations, and practical classes covering the laboratory diagnosis and pathological aspects of general, tropical, and preventive medicine and military surgery. Candidates for specialization in pathology receive at the College six months' training in bacteriology, haematology, chemical pathology, and morbid anatomy; a further six months' study in a particular branch of pathology is made at a selected university centre.

The Department of Psychiatry provides lectures and clinical demonstrations in psychiatry and psychopathology and the application of psychological principles to morale, discipline, personnel selection, and other purely military matters. Clinical demonstrations of cases and the use of modern methods of physical treatment and group therapy are held at the Royal Victoria Hospital, Netley, which is a recognized hospital for the D.P.M. of the Royal Colleges.

The College also provides courses of instruction for nursing officers of the Queen Alexandra's Royal Army Nursing Corps, when emphasis is laid on the nursing problems encountered in the Service, particularly in the Tropics.

THE NAVAL MEDICAL SERVICE

The Royal Navy offers an interesting and excellent career for young medical men. Naval medical officers serve both afloat in H.M. ships and ashore in naval hospitals, training establishments, etc., and they have the opportunity of service in many parts of the world. Entry into the Service as an acting surgeon lieutenant is, in the first instance, on a short service basis for a period of four years. Officers who leave the Service at the end of the short service engagement receive a gratuity of £600, tax free. Short service medical officers who wish to make the naval medical service their permanent career may apply to transfer to the Permanent List during their short service. The Service offers to keen officers many opportunities for the practice of their profession, and facilities are given for them to specialize. Courses of postgraduate study are arranged not only in naval hospitals, but also at the more important civil centres of postgraduate instruction. A wide variety of subjects fall to the concern of medical officers, including aviation medicine, the physiology of diving, the physical aspects of active service in the Tropics, and also in Arctic regions, commando service, and so on.

The rank of acting surgeon lieutenant is borne for only one year's duration, and thereupon the rank of surgeon lieutenant is conferred on the officer with such additional seniority, up to a maximum of two years, which can be awarded to him in respect of house appointments and medical experience of a comparable nature undertaken before entry. Those who obtain higher professional degrees or show proficiency in specialist subjects and are employed in specialist posts receive allowances while so employed. This specialist pay is at the rate of 8s. a day for senior specialists and 5s. a day for other specialists.

Promotion to surgeon lieutenant-commander, the next rank, is granted after a period of eight years' total service, which period of time is, of course, reduced by any antedate of seniority granted as mentioned above. Further promotion—that is, to surgeon commander, surgeon captain, and surgeon rear-admiral—is by selection. Except as regards the last promotion named, the approved selections are announced every half-year.

Various other allowances are received by all medical officers, including lodging allowance when not provided with Service accommodation, victualling or ration allowances, marriage allowance, travelling expenses on duty, and passages for wives and families to approved appointments abroad. The code for payment of gratuities and pensions on leaving the Service covers every aspect of the matter—for example, voluntary retirement before a pension has been earned, pension on being invalided from the Service, and retired pay on completing the normal period of a full career. The Government has recently announced bigger retired pay and pensions and a lump sum to all those retiring or being discharged to pension on or after September 1, 1950. The lump sum or terminal grant of £1,000 is free of tax, and 20 years' reckonable service will be necessary for the full grant. The effect of the enhanced rates of Service retired pay on the pension of a medical officer who serves a normal career is represented by the increase of £50 a year to a surgeon commander, R.N., on retirement at 55, the new rate being £675 a year.

Further information can be obtained on application to the Medical Department of the Navy, Queen Anne's Mansions, St. James's Park, London, S.W.1.

Officers are also entered for compulsory military service in the rank of temporary acting surgeon lieutenant, R.N.V.R. Conditions of service are broadly similar to those in the Royal Navy, except that whilst so serving they are not eligible for the gratuity or antedate of seniority referred to above. They may, however, apply for a short service engagement, Royal Navy, and subsequently, if they so desire, for transfer to the Permanent List of R.N. medical officers. Candidates for entry on such temporary engagements must, however, apply to the Central Medical War Committee, British Medical Association House, Tavistock Square, London, W.C.1.

MEDICAL STUDENTS' ASSOCIATION

The British Medical Students' Association (B.M.A. House, Tavistock Square, London, W.1) was founded ten years ago for the promotion of the interests of medical students. It received the blessing and a considerable amount of help from the B.M.A. It has developed into a highly enterprising body, publishing a lively quarterly journal, holding an extended annual general meeting, and also organizing clinical conferences at other times of the year. As a result of the initiative of the Association, the formation of an International Federation of Medical Student Associations is well on the way to fruition, and the B.M.S.A. has been asked to organize the first General Assembly in London in June of next year.

Plans are being made by the B.M.S.A. to publish a handbook containing useful information for medical students; it already publishes a compact reference diary. An inquiry into compulsory residence by medical students has been carried out, and certain recommendations have been made and proposals for improvement in this matter are to be pressed. The Student Tuberculosis Appeal Fund, of which Viscountess Mountbatten is president, has reached £13,000. A pilot scheme is to be started soon to try out the various ideas and schemes for the continued education of students with tuberculosis. Another activity has been the extension of a scheme of vacation appointments to include non-medical posts, such as porters, etc.; this is primarily for the benefit of preclinical students.

DEFENCE SOCIETIES

The Medical Defence Union (Tavistock House South, Tavistock Square, London, W.C.1) has a membership of over 35,000. It has thrown open its doors to dental as well as medical practitioners, and has made special provision for overseas medical and dental practitioners practising in the Dominions and other countries. Its work has been increasing by leaps and bounds during the past three years. It provides advice and unlimited financial indemnity to any member threatened with or involved in litigation raising a question of professional significance or, more commonly, based upon a charge of professional negligence. The accumulated funds are £158,000, and the subscription income is mounting annually, though costs of litigation and settlements out of court are mounting even more rapidly. Since its foundation the Union has spent over £400,000 on damages and costs incurred in protecting members.

The Medical Protection Society (Victory House, Leicester Square, London, W.C.2) has a membership of over 27,000. During the past year it has gained 1,961 members, a record in the history of the Society. Membership is open to registered medical and dental practitioners. There are special provisions for members practising overseas, and also for practitioners who visit the United Kingdom for post-graduate work. Members are afforded advice and assistance in all matters of professional difficulty, with unlimited indemnity against legal expenses incurred in defending and conducting cases on their behalf, and also against costs and damages in those cases in which adverse verdicts result. This indemnity is secured by financial resources exceeding £150,000 and a reinsurance with Lloyd's underwriters. From year to year the work of the Society increases steadily and larger amounts of costs and damages are paid on behalf of members.

The Medical and Dental Defence Union of Scotland (113, St. Vincent Street, Glasgow, C.2) has a membership of 6,965, but with the summer influx of new graduates it is expected that at the time of the annual balance the membership will be in the region of 7,100. The total assets are about £42,000. The policy of the council has always been to give careful consideration to the interests of its members who have claims made against them for negligence.

MEDICAL ILLUSTRATION

The University of Edinburgh offers a three-years course leading to a Certificate in Medical Illustration. The first group of students have just received the certificate. The course is suited for those considering medical illustration as a profession. The candidates, who must not be less than 18 years of age, must have had a good secondary education. Full training is given in half-tone and line work, and instruction in anatomy suitable for art students. In the first year general instruction is given in the requirements of medical illustration, preparation of diagrams and charts, and drawing from prepared dissections. The second year includes the preparation of half-tone drawings, instruction in micro-drawing, and special subjects such as cystoscopic and bronchoscopic views. During the third year certain time is spent in the operating theatre under supervision and the preparation of drawings from operation notes.

The Medical Teaching Film

The British Film Institute (164, Shaftesbury Avenue, W.C.2) has started a section of scientific films for teaching purposes. Many of these films have been recommended by the British Universities Film Council or by the Scientific Film Association (4, Great Russell Street, W.C.1), which has a medical committee. The Scientific Film Association is shortly publishing a new catalogue of medical films, to appear probably in November.

The object of the British Film Institute has been to gather together scientific films made in universities by people engaged on a particular line of research, and which would be of interest to others working on similar lines. The list of such films includes British, French, German, and South American work of medical interest. A problem of special interest to the Institute is the physical handling of films, which can be much more easily dealt with by a trained staff.

The British Medical Association has embarked upon the compilation of a comprehensive library and catalogue of medical films and filmstrips. Films may be borrowed from the library at nominal charges, and many Divisions of the Association and other medical assemblies have availed themselves of this service. The film library at present contains some 230 films, and is constantly being expanded and improved in quality. One B.M.A. film entitled "Infections of the Hand"—a sound film in colour—has been voted as outstanding and has been shown to appreciative audiences in this country and abroad. A film, "Acute Inflammation," has been presented to the B.M.A. film library by the British Medical Students Association. There is a film theatre in B.M.A. House.

Wellcome Historical Medical Museum and Library

The Wellcome Historical Medical Museum is at 28, Portman Square, London, W.1. Its collections cover all aspects of the history of medicine and certain allied sciences, from the earliest times to the nineteenth century. The prehistory, classical, and eighteenth and nineteenth century collections are especially important. Exhibitions of material from the collections are constantly held, and are open to the public from 10 a.m. to 5 p.m. daily (except Sundays). At present the main exhibition deals with "British Medicine and the Continent, 1600–1850." Catalogues of the various exhibitions are published by the Oxford University Press. Students working on special branches of historical research may obtain permission to study individual items in the collections on application to the Director.

The Wellcome Historical Medical Library is at 183–193, Euston Road, London, N.W.1. It contains approximately 200,000 books and journals concerning the history of medicine and the allied sciences, some 5,000 MSS, and 100,000 autograph letters of medical and scientific interest.

Wellcome Museum of Medical Science

The Wellcome Museum of Medical Science is also at 183–193, Euston Road. It consists of descriptions of diseases under the following headings: general, aetiology, epidemiology, pathology, clinical, diagnosis, treatment, prognosis, and prevention. The teaching standard aimed at is general medical postgraduate, but the museum is equally useful to medical undergraduates. All material at present exhibited has been rearranged since the war. The museum is open on weekdays from 9 a.m. to 5.30 p.m., without fee or formality, to all medical graduates and students, nurses and student nurses, and workers and students in the medical sciences.

HIGHER QUALIFICATIONS

The Royal College of Physicians of London confers its Membership (M.R.C.P.Lond.) by examination. The pass for Membership is a written examination in the form of a paper on questions of medical anatomy, pathology, and principles of medicine; a paper on questions on the practice of medicine, including the principles of public health, and on psychological medicine; a clinical examination in the clinical wards of a hospital; and oral examinations. Fellowship of the College is subject to election by the Fellows.

The Royal College of Surgeons of England grants its Fellowship (F.R.C.S.Eng.) to those who pass its primary and final Fellowship examinations. The primary examination, partly written and partly oral, is held in January and July, and the final examination, partly written, partly practical, and partly oral, and including examination of patients, in May and November.

The Royal College of Obstetricians and Gynaecologists requires all candidates for its Membership examination to have been on the *Medical Register* for at least three years, and to have held certain resident appointments recognized by the College. The examination consists of two written papers of three hours each, a clinical examination, and a *viva voce* examination including pathology. The Fellowship is granted to members who are considered to have advanced the science and art of obstetrics and gynaecology.

The Royal College of Physicians of Edinburgh admits no candidate to its examination for Membership before the expiration of two years from the date of original qualification. The examination is in the principles and practice of medicine and also in a department of medicine selected and offered by the candidate and approved by the council, in which a high standard of proficiency is expected. Fellows of the College must, before election, have been Members of the College for at least three years.

The Royal College of Surgeons of Edinburgh has a two-part examination for its Fellowship: the first, a written paper and an oral examination in anatomy and physiology, and in pathology and bacteriology; the second, a written paper, a clinical and practical examination, and an oral examination in the principles and practice of surgery, and in an optional subject chosen by the candidate.

The Royal Faculty of Physicians and Surgeons of Glasgow grants, after examination, a Fellowship *qua* physician and a Fellowship *qua* surgeon (F.R.F.P.S.G.). Candidates for the Fellowship in medicine must have been in possession of a recognized qualification for not less than three years and have been engaged during one of those years in full-time clinical work in a recognized hospital and have spent two other postgraduate years in approved medical work. The examination comprises a clinical examination in medicine, written and oral examinations in the principles of medicine and medical pathology, and written and oral examinations in the practice of medicine and therapeutics. Candidates for admission to the Fellowship in surgery must possess a medical qualification and pass a primary and a final examination. For admission to the final examination the requirements are similar to those for examination for the Fellowship in medicine, and the examination comprises a clinical examination in surgery, written and oral examinations in surgical anatomy and surgical pathology, and written and oral examinations in surgery. Candidates who have passed the primary examination for the Fellowship of the Royal Colleges of Surgeons of England, of Edinburgh, and in Ireland, or the Royal Australasian College of Surgeons, will be exempted from the primary examination for the Fellowship of the Faculty *qua* surgeon.

The Royal College of Physicians of Ireland grants on examination its Membership (M.R.C.P.I.), its licence in medicine (L.M.), and its licence in midwifery (L.Mid.). It also grants by examination, conjointly with the Royal College of Surgeons, diplomas in psychological medicine, child health, anaesthetics, and ophthalmic medicine and surgery. The Fellowship of the College (F.R.C.P.I.) is granted by election; only Members of the College are eligible.

The Royal College of Surgeons in Ireland requires two examinations — primary and final — for its Fellowship (F.R.C.S.I.). The first is in anatomy, physiology, and pathology, and the second in surgery. A one-year course for the primary starts in October each year and lasts three terms.

All the universities confer the higher qualification of Doctor of Medicine and Master of Surgery. Liverpool has a degree of Master of Orthopaedic Surgery (M.Ch.-Orth.U.Lpool.). At the University of Durham there will be no examination for the degree of Master of Surgery after June, 1952, and in connexion with the degree of Doctor of Surgery (D.Ch.) the regulations at present published will cease to operate after that date, and will be replaced by new regulations. Briefly, these regulations will provide that in order to qualify for the degree of Doctor of Surgery a candidate must be of at least six years' standing from admission to the degrees of Bachelor of Medicine and Bachelor of Surgery of that University, and the degree will be awarded primarily in consideration of independent contributions to surgical knowledge, either published or in the form of a thesis on a subject or subjects concerned with surgery approved by the Board of the Faculty of Medicine.

University requirements for the higher qualifications vary, and particulars should be obtained from the one selected.

The D.P.H.

Diplomas in Sanitary Science, Public Health, and State Medicine are registrable as additional qualifications. The D.P.H. is conferred not only by the universities but by the Royal Colleges and Corporations. The degree of Bachelor and Doctor in Hygiene is conferred by the University of Durham, the Diploma in Sanitary Science by the Victoria University of Manchester, and the degree of a Bachelor of Science in Public Health by the University of Birmingham.

Most of the universities offer a full-time course in public health, lasting for nine months and beginning in October. At Durham the courses for the D.P.H. and also for the Certificate in Public Health will not be held during the next academic year in view of the very few applications received. At the University of Leeds the D.P.H. course as from October of this year will be a part-time one. The curriculum for the diploma extends over a period of not less than 18 calendar months of part-time study, which must be subsequent to the attainment of a medical qualification. The examination is in two parts, preliminary and final. The final examination includes four written papers on subjects specified in a list; a clinical examination in infectious diseases; an oral examination in infectious diseases, epidemiology, and general and special hospital administration; a practical examination in bacteriology; and an oral examination in public health.

The London School of Hygiene and Tropical Medicine offers a preliminary course designed to meet the needs of practitioners who wish to devote themselves to any branch of public health work, and a full course of more advanced instruction to qualify for appointments for which it is necessary to hold diplomas or degrees in Public Health or State Medicine. The full course lasts for nine months and begins in the early part of October each year, and the preliminary part extends over the first three months.

The Royal Institute of Public Health and Hygiene furnishes courses of instruction for the C.P.H. and the D.P.H. The C.P.H. course begins approximately in March and October. Courses for the D.P.H. (final examination) begin in January and August.

In 1950 there were 115 passes in examinations for Diplomas in Sanitary Science, Public Health, or State Medicine, and 8 rejections. London University had the largest number of examinees (44). The total number of entrants for the examination (123) was 62 fewer than in 1949. There were 168 passes and 29 rejections in the examinations for Certificates in Public Health, a decrease of 14 on the number for the previous year.

Tropical Medicine and Hygiene

The University of London has recently established an academic postgraduate Certificate and Diploma in Tropical Medicine and Hygiene. The London School of Hygiene and Tropical Medicine has instituted a course of study for this distinction. Students may be admitted to the preliminary course and to the examination for the certificate at any time after receiving their medical qualification, but may not enter for the final course unless they produce evidence that they have had experience of the practice of medicine extending over a period of at least twelve months in a country accepted by the University as a place where tropical diseases prevail. The final course need not be attended in the same academic year as the preliminary course, provided that the interval between the completion of the one and the commencement of the other does not exceed five years.

The course begins at the London School on October 1, 1951, and both the preliminary course and the final course

extend over a period of not less than four months' whole-time study. The certificate examination will be held in February and in May of each year and the diploma examination in June and September.

Established courses for the Conjoint D.T.M.&H., the Dip.Bact., etc., are arranged by the London School of Hygiene and Tropical Medicine.

The Liverpool School of Tropical Medicine offers two courses of instruction, each lasting about five months, for the D.T.M.&H. The examination for the diploma by Liverpool University is held twice yearly, in January or February, and in April or May. The syllabus includes tropical medicine, dermatology, ophthalmology, and surgery, also bacteriology, entomology, parasitology, and tropical hygiene. The Liverpool School also gives courses of instruction in public health, parasitology, and entomology for students taking the D.P.H., and in veterinary parasitology and entomology for students taking veterinary degrees or diplomas.

Edinburgh University has courses for the D.T.M.&H.Ed., lasting two terms, beginning in October. At Edinburgh the Diploma in Tropical Veterinary Medicine has been in abeyance since 1939, but resumption of the course at an early date is under consideration.

Other Diplomas

Diplomas in Industrial Health are granted by a number of bodies, including the Royal Faculty of Glasgow and the Scottish Conjoint Board, and full-time postgraduate courses are arranged at certain universities. At Edinburgh it has been decided to discontinue this course as from July, 1951.

The Royal Institute of Public Health and Hygiene furnishes courses for the Diploma in Industrial Health. The course for Part I is the same as, and runs concurrently with, that for the Certificate in Public Health, and holders of the certificate are exempt from that part. The certificate course begins approximately in March and October, and that for the diploma in February and July. All courses may be taken whole-time or part-time.

New regulations for the Diploma in Psychological Medicine have recently been approved by the University of Durham, and it is hoped to begin courses for the diploma during the next session. At Edinburgh an intensive five-weeks course for the University Diploma in Psychiatry will begin next October. The course is primarily intended for persons who are registered as candidates for the diploma, but it is open to others who may be interested to attend.

For the various special diplomas available the programmes and prospectuses of the various bodies must be studied.

The Faculty of Radiologists offers a Fellowship (F.F.R.) to medical graduates of five years' standing who have spent at least one year in general clinical work at approved hospitals, hold a radiological diploma, and, since obtaining it, have practised radiology exclusively. Candidates are required to pass an examination and submit a thesis. Those who hold medical or surgical qualifications may be exempted from the examinations in general medicine, general surgery, and pathology.

A course of postgraduate lectures is given at the Royal London Homoeopathic Hospital (headquarters of the Faculty of Homoeopathy) every year from October to June, including tutorial clases, ward rounds, and intensive training in homoeopathy, with a diploma examination at the end of each course for those who wish to sit. Further particulars will be sent by the Dean to any who are interested.

PROFESSIONAL SOCIETIES

Two pieces of advice are invariably given to the newly qualified medical man or woman—namely, the expediency of joining the British Medical Association and of joining one or other of the defence societies. The coming of the National Health Service has made this advice more, rather than less, cogent. The defence societies are referred to under another heading. By joining the British Medical Association the young practitioner helps to ensure unity in the profession so that it can keep the service on right lines, making it possible for the doctor to carry out his work under acceptable conditions and in the best interests of his patients.

The British Medical Association had a membership at the beginning of the present year of over 64,000. In the United Kingdom 77% of the total profession and 85% of the working profession are members. Members are elected by the council of the Branch in whose area they reside, or, if serving in the Forces or for other reasons not resident in a Branch area, they are elected by the Central Council. The privileges of members include participation in all activities, local or central, of its democratic government, and in the formulation of policy; the weekly receipt of the *British Medical Journal* and its *Supplement*; the use of the Association's library of over 51,000 volumes, and of the houses of the Association in London and Edinburgh; and the help of a highly skilled and experienced staff in professional matters. Two recent developments—the Empire Medical Advisory Bureau and the International Medical Visitors Bureau—are referred to elsewhere.

Three years ago a Medical Practices Advisory Bureau was established as a department of the Association under the direction of a member of its medical staff. Its functions are to maintain an information service about openings in the various fields of medical practice; to introduce partners, assistants, and locumtenents; and to advise on all individual and personal problems associated with entry into and conduct of medical practice. The facilities of the Bureau are available to any doctor and are free of charge to members of the Association. Inquiries should be addressed to the Medical Director either at the head office of the Association in Tavistock Square, London, or at the branch offices at 33, Cross Street, Manchester, 2, and 7, Drumsheugh Gardens, Edinburgh.

The ordinary subscription to the Association for members resident in Great Britain and Northern Ireland is four guineas per annum, but certain classes come in at lower rates, and the newly qualified practitioner who is admitted to membership before the expiration of two years from the date of registration pays two guineas per annum up to the end of his fourth year after registration.

The British Medical Guild is an independent parallel organization formed for the better protection of the interests of the profession in disputes with public authorities or other bodies, and the compensation of members for financial loss incurred through loyal acceptance of B.M.A. policy. Local organizations of the Guild have been formed.

Three main committees of the Association deal with problems affecting practitioners employed in the National Health Service. The General Medical Services Committee represents general practitioners. Its membership is not confined to members of the Association. It is the executive of the Conference of Local Medical Committees (that is, the committees representative of the practitioners in each area, and recognized as such by the Minister under section 32 of the Act). The Central Consultants and Specialists Committee considers and acts in all matters affecting those engaged in consulting and specialist practice. This, like the General Medical Services Committee, is an autonomous body within its field, and is concerned with the terms and conditions of service for consultants and specialists under the Act. Regional committees have also been established. The Public Health Committee deals with the problems of those engaged in the Public Health Service.

The Public Health Committee of the Association acts in conformity with an agreement with the Society of Medical Officers of Health under which medico-political activities in this field are undertaken by the Association. The Society, whose offices are at Tavistock House South, Tavistock Square, W.C.1, is a body of medical officers engaged in public health work in all its branches. Its official organ

is *Public Health*. There is reciprocal representation on the Association's Public Health Committee and the Society's Council.

Another body which works in close relationship with the Association, and is represented as such on its General Medical Services Committee, is the Medical Women's Federation, whose offices are at Tavistock House North, Tavistock Square, W.C.1. The Federation is the only professional organization consisting solely of medical women. It endeavours to bring before the main body of the profession the special minority difficulties of medical women and, when necessary, to press for the full application of the principle of equality. The Federation has active local associations all over the kingdom, including a large London association; it also has an association of its overseas members.

THRESHOLD OF PRACTICE

The newly qualified medical man, after serving a certain term as resident medical officer in his hospital, is faced with the need for a decision on the branch of practice in which his future is to lie. Is he to be a general practitioner, or to take up one or other of the many specialties, or to become an officer in the public health service? To what extent in each of these roles has the coming of the National Health Service Act altered the traditional methods or facilitated or impeded the settlement of the young medical man in his life's work?

Many helpful suggestions for the newly qualified practitioner are to be found in the *Medical Practitioners' Handbook*, which was reissued by the British Medical Association last year. In particular he should study Sections IV and V, which are concerned with entry into practice and with the relationships of assistants and principals and of partners. If he is still left with unanswered questions he should apply to the Medical Practices Advisory Bureau, a department of the Association, at B.M.A. House, Tavistock Square, the functions of which are described on another page.

The future general practitioner may usefully spend some time as an assistant, perhaps for one year as a trainee assistant, and after that he may take other temporary appointments in conditions as varied as possible. There are three ways in which he may realize his ambition to become a principal. One is by "squatting," although even if the conditions are apparently advantageous the way of the "squatter" is likely to be hard, the returns to be meagre for a long time, and the expenditure unexpectedly heavy; it may be relieved to some extent by the grant of a basic salary of £300 a year on application to the executive council. The other ways are by taking over a practice rendered vacant by death or retirement, and by obtaining an assistantship with a view to becoming a partner. In all cases in which it is desired to become a principal in general practice application must be made to the executive council for admission to the practitioners' list. This is given as a matter of course unless the Medical Practices Committee, which supervises the distribution of general practitioners, declares the area to be already adequately served.

The introduction of the National Health Service has not affected the mode of entry into specialist practice to the same extent, but the practitioner who contemplates a specialist career would do well first to seek advice from a senior consultant in the specialty of his choice, from the dean of his school, and from the director of the British Postgraduate Medical Federation. One of his first steps must in any case be to obtain one or more of the higher qualifications mentioned under that heading on another page, for without these he cannot hope for a suitable appointment in hospital or in the public health service.

Hospital medical staff now comprise the following: house officers, junior hospital medical officers, junior and senior registrars, and general-practitioner medical officers, all appointed by hospital management committees or boards of governors. Above these, appointed by regional hospital boards or boards of governors, are senior hospital medical officers, who perform clinical duties but are not of consultant status—a grade about which there has been much controversy—and consultants. Specialist services for the mentally ill are also provided through regional hospital boards and boards of governors.

In the public health field the appointments include those of medical officers of health, with their deputies and assistants; school medical officers (posts in the majority of cases combined with those of medical officers of health); divisional medical officers for National Health Service functions; maternity and child welfare officers; and port health officers. The former tuberculosis officers have now become, for the greater part of their work, officers in the hospital service under the name of chest physicians. Other areas of medical practice, some of which are referred to more extensively in these pages, are industrial medical officers, medical officers in the various branches of the armed Forces and in the merchant navy, medical officers in the Colonial Medical Service, and the medical staffs of certain Government Departments, such as the Ministry of Health, the Ministry of National Insurance, and the Factory Department of the Ministry of Labour and National Service. Finally, there are a number of posts for medical practitioners who prefer research work, which may or may not be combined with teaching duties, to clinical medicine. Clinical pathology offers a large field, practised either in the great hospitals or as a general subject in smaller centres.

The campaign through the United Nations to bring tuberculosis under control has been officially closed. The International Tuberculosis Campaign was conducted by the United Nations International Children's Emergency Fund, the World Health Organization, the Danish Red Cross, Norwegian Relief for Europe, and the Swedish Red Cross. 37,000,000 children and young adults were tested, and nearly 17,000,000 vaccinated against tuberculosis. Twenty-two countries in five continents were involved. Now, after four years' work, the Scandinavians are withdrawing, their commitments fulfilled. The work, however, is still to be carried on by the Children's Fund and the World Health Organization, which is now taking over the technical responsibility for the conduct of the campaign. Although already nearly 5,000,000 people have been tested in Ceylon, India, and Pakistan, there is need for much more to be done in the heavily populated countries of Asia. To be included, too, will be the entire child population of a number of countries in Central and South America and the Eastern Mediterranean. The present control effort originated in mass vaccination campaigns conducted after the war by the Danish Red Cross in several European countries in the spring of 1947. As more countries, faced with a severe tuberculosis problem and limited means of coping with it, appealed for help, the other two Scandinavian relief societies joined with the Danes. Early in 1948 the United Nations, through its newly established Children's Fund, entered into partnership with the Scandinavians, and with the Fund's great resources it was then possible to broaden the existing campaigns to obtain nation-wide coverage and at the same time to extend the effort to countries outside Europe. W.H.O. was also drawn into the undertaking. The sum of $4,500,000 was assigned by the Fund's 26-nation executive board for the furtherance of these campaigns. About half of that amount was for campaigns in Europe; the other half for those launched outside Europe. The Scandinavians pledged their continued support both technically and financially. In all, the international contribution was less than $5,000,000. In most of the countries which carried on campaigns, ministry of health expenditures more than matched the international contribution. A rough estimate of around $10,000,000 stands, therefore, as the cost of this great immunization effort.

Correspondence

A Great Teacher

SIR,—I was fascinated by Sir Henry Souttar's kindly article on Friedrich von Müller (August 11, p. 340), who once was a teacher of mine and at whose clinic I worked, under his personal guidance. I never forgot the impact of his teaching and his personality.

Many changes and advances in medicine have modified our present outlook: sulphonamides and antibiotics were not even thought of when, about 30 years ago, we had the privilege of working at Munich—nor did we rely so much on *x*-rays and electrocardiographic methods as we do nowadays. But these restrictions imposed on us an even higher degree of acuteness in clinical observation, and never shall I forget Friedrich von Müller's sharp ear, by which he supervised our own findings. His art of percussion and auscultation was perfect. He used a *wooden* stethoscope, his ear bent deeply down to the patient's chest, and not only the ear but the whole of his marvellous head, nay, the whole of his body, was listening. He once explained that apart from listening he felt at the same time those tactile vibrations which accompany acoustic signs, and that his perceptions became more sensitive by the mental co-ordination of tactile perceptions and sounds. And there was the microscope at the patient's bedside and the clinical laboratory in a side room of the ward, the insistence on examining a sample macroscopically before making a chemical and microscopical test—nothing was passed on to the clinical pathologist: Friedrich von Müller invariably looked through the microscope himself.

There was a dramatic power and quality in the great man's diagnosis of a special case. It was built on systematization, which meant a principle that only one disease ought to be diagnosed in a single case and only one specific cause for every single one of its many symptoms. It was not enough to say that a patient had oedema, enlarged liver, ascites, psychological anxieties, myocarditis, and all the signs of hyperthyroidism: the case was traced further to the pituitary gland, and there were finally at this stage open questions which at that time could not be decided. There may be objections to this principle of unifying systematization, tracing signs and symptoms to one single cause. But what Friedrich von Müller achieved was a supreme training in causal thinking. There was no juxtaposition of so many single features: but every single one had to be explained in terms of causality-chains: from the pituitary gland the thyroid and other glands were affected, the carbohydrate metabolism was interfered with, the heart, the psychological attitude, and finally the patient's peripheral circulation.

This leads to a third remarkable point in Friedrich von Müller's attitude: He was extremely aware of psychosomatic conditions. I remember a case of a 57-year-old man suffering from "somatic psychosis," as it was called, due to uraemia. The man became normal again after lumbar puncture, sitting up in his bed with an anxious face and hardly daring to speak. "He is puzzled," explained von Müller. "These people often think they have died, and they wonder whether they are on earth or in a different place altogether." But in every case there was a tremendous feeling for and vision of the human background of a patient. I remember the case of a 19-year-old Society girl who after one of the official university dances found herself lying in bed with a paraplegia. She was placed in a plaster-of-Paris bed, lying there for many months without any signs of speedy recovery. Tuberculous spondylitis was diagnosed, but von Müller was aware of a deep psychological disturbance as well. With all his passion for exact clinical work von Müller was a genius of "Einfühlung," which is even rare among artists and writers.

When I worked at Nottingham I was interested in a series of neurological cases—disseminated sclerosis, subacute combined, a brain tumour, and a Friedreich. I had samples of their handwritings taken, and I wrote to the great man to ask whether he would kindly help me in analysing these samples, as I had tried under his guidance in Munich. Friedrich von Müller extended his kindness to me even then, when I lived in exile. Yes, he remembered my interest in pathological handwritings, and he sent me his own collections, which he had gathered from the earliest time of his medical career. There they were, as I knew them, collected in a black German exercise book, samples from the year 1884, when he worked in Würzburg, even in Augsberg, samples from Breslau, samples from Berlin, Bonn, Munich, and Basle. Yes, I remembered these handwritings well and how Friedrich von Müller had analysed some of these samples. I took some photographs. But when I went to Germany, after the war, the great man was no longer alive, and the dark, dear exercise book has remained in my hands.—I am, etc.,

London, W.8. K. T. BLUTH.

Training in Child Psychiatry

SIR,—In your abstract of the report by the L.C.C. Committee on Juvenile Delinquency (August 4, p. 298) you quote their statement that "there is not at present any complete or really adequate training in child psychiatry." It is not clear who told the committee this, but the statement is incorrect. In the Institute of Psychiatry at the Bethlem Royal Hospital and Maudsley Hospital a full training in child psychiatry, as in other branches of the subject, is available: the amount of time and content of instruction vary according to the needs of registrars and other postgraduate students from the minimum basic training (six months whole-time or twelve months half-time) to two and a half years whole-time. I believe there are several other centres in Great Britain where a complete and adequate training in child psychiatry is afforded, either in conjunction with general training in psychiatry or separately. In view of these facts I would consider that in being "advised that there is not at present any complete or really adequate training in child psychiatry" the committee was ill advised.—I am, etc.,

Maudsley Hospital, S.E.5. KENNETH CAMERON.

Early Diagnosis of Herpes Zoster

SIR,—The diagnosis of herpes zoster in the pre-eruptive stage is notoriously difficult, and the segmental neuralgia which occurs is often a source of anxiety to the practitioner, requiring as it does differentiation from such conditions as pleurisy and the "acute abdomen." The following confirmatory sign, which, so far as I am aware, has not hitherto been described, is therefore considered noteworthy.

My attention was first drawn to this sign when a middle-aged woman consulted me with the complaint of pain affecting the left side of the chest. On examination I was interested to discover a number of erythematous areas in the painful zone, their distribution suggesting that they had been provoked by the friction of her clothes. Light stroking of the skin in this region resulted in the production of the "triple response" of Lewis, a feature not observed on stimulation of the skin outside the painful area. This patient later developed typical herpes zoster.

Since that time I have seen two further patients in the pre-eruptive stage of zoster. In each of these it was possible to produce a red line and flare by light stroking in the area subsequently showing a rash, a response much greater than that obtained from the surrounding skin though not equalling in intensity the full-blown "triple response" observed in the original case.

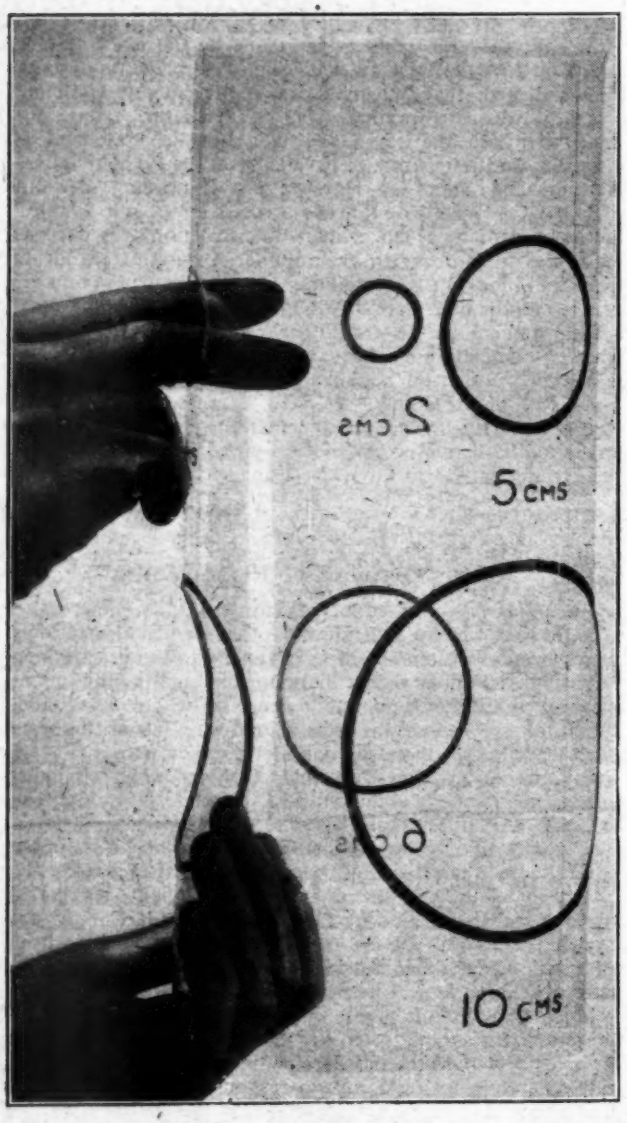
I have not been able to demonstrate the sign in control cases with, for example, fibrositis and other lesions causing pain difficult to distinguish from that of zoster. It is, however, necessary to exclude the possibility that heat has been previously applied to the painful area as a means of alleviation, since this might cause a similar skin response to stroking.

The sign appears explicable on the basis of the suggestion made by Lewis about the mode of production of the skin lesions. Antidromic impulses passing down the sensory fibres from the affected ganglia are said to release in the skin substances of a histamine-like nature which, by their action on the skin vessels, ultimately cause the eruption. Presumably in the pre-eruptive stage these impulses render the skin hypersensitive to stroking by an effect on the skin vessels not yet sufficient to result in the herpetic rash, the "triple response" itself being known to depend on a similar process of liberation of histamine or histamine-like substances in the skin stimulated.—I am, etc.,

South Shields. R. B. RAFFLE.

Estimation of Dilatation of the Uterine Cervix

SIR,—Dilatation of the cervix is at present recorded by two systems of measurement. Some clinicians and midwives talk in terms of fingers, others in terms of currency. A weeping patient in labour explained her distress by saying



that she overheard the nurse mention that the child had only two fingers.

The coinage system leads to such absurdities as "three and sixpence dilated." Outside the sterling area our American colleagues use a dollar-cent system, or fingers, and this despite De Lee-Greenhill's plea that dilatation of the cervix should be reported in centimetres. The recent report of the Committee on Weights and Measures Legislation, hailed in the *British Medical Journal* as "courageous" (May 26, p. 1195), prompts me to offer the following simple piece of apparatus which is capable of converting the digital scale to the metric system without strain on the arithmetical faculties of the midwife or doctor.

The photograph explains the construction and use of the apparatus. The device is cylindrical, so that it will stand near the sink in the labour ward. It is of plastic material and washable, so that the gloved fingers can be used immediately after an examination has been made and the impression of dilatation is still fresh. The figures below the circles represent in each case its vertical diameter. The cylinders have been in use for several months at St. James's Hospital and have proved to be satisfactory.

The apparatus is marketed by Messrs. Harrison Agencies Company, 64, Dulwich Road, Holland-on-Sea, Essex. The original model and the photograph were made by Josephine Bruce and Elizabeth Mason, respectively medical artist and medical photographer at St. James's Hospital, London, S.W.12.—I am, etc.,

London, S.W.12. JOHN FRANKENBERG.

Mosquito Bites and Age

SIR,—Dr. R. C. Muirhead-Thomson (May 19, p. 1114) is to be congratulated on his interesting and helpful observations, which have just come to my attention, on the distribution of anopheline mosquito bites among different age groups. His article called to mind a phenomenon which I observed in 1943 but did not report. During that year I was stationed with the armed Forces on one of the islands off the coast of North Carolina. The area was heavily infested with *Aëdes sollicitans*. These large, voracious day and night biters made it practically impossible for one to venture far without mosquito headnets and gloves. The native adult white people living in the area likewise were loath to venture far without protective covering. Both they and I received numerous painful itching bites when attacked by the mosquitoes.

The children were not so affected, and seemed to go about their way without concern. On examining some of them I was surprised to find that they had no bites. Lack of bites on the children was not due to the fact that the mosquitoes could not alight on them, for I frequently observed this to be the case. The only explanation that occurred to me at the time was that the children, for some physiological reason, were not susceptible to the injected toxins. It may well be that my theory was based on a fallacious assumption—namely, that the children were being bitten.—I am, etc.,

Evansville, Ind. W. D. SNIVELY, JUN.

Ethics of Prefrontal Leucotomy

SIR,—I agree entirely with Mr. Joseph Schorstein's views (July 28, p. 239) on this subject. As Norbert Wiener says in his *Cybernetics*, leucotomy is essentially a method of achieving more efficient custodial care, and an even more efficient method of obtaining such care is by destruction of the whole patient—a method put into practice by some of our German colleagues during the war.

It is monstrous to argue that such an operation on Mrs. X is worth while because of its beneficent effect on Mrs. X's home life. Does this justify the action of Mrs. X's own doctor in effecting the permanent spiritual mutilation of his patient?

We can say the last word on the matter by adapting a remark of Mr. T. S. Eliot's on the supposed therapeutic effects of Time: "Leucotomy is no healer: the patient is no longer there."—I am, etc.,

London, W.1. DAVID LE VAY.

SIR,—I write to welcome Mr. Joseph Schorstein's letter (July 28, p. 239) in which he refers to the article by Dr. G. D. F. Steele (July 14, p. 84). This article on the treatment of a case of persistent anxiety and tachycardia by leucotomy omits all reference to the deeper issues and contains the following statement: "One year after the operation she remained well; her mental equilibrium has been restored

at the price of the familiar personality changes associated with leucotomy. These have not seriously impaired her *functional efficiency* [my italics]. Both the patient and her husband believe the operation well justified."

One can only hope with Mr. Schorstein that this case may have "the welcome result of shocking medical opinion into reconsidering the whole problem in its basic aspects." The leucotomy enthusiasts have abandoned their initial claim that they cut the brain about only in the hopeless mental hospital case. Gradually the indications for this treatment have encroached on the psychoneuroses. According to Dr. William Sargant obsessional neurosis often calls for this treatment, and in the *Lancet* (July 21, p. 87) he advocates leucotomy for "dermatitis, effort syndrome, nervous vomiting, anorexia nervosa, and the like." Further, a new psychology is developing, as represented by his article "The Mechanism of Conversion" (August 11, p. 311), and we may expect a rapid growth of this theorizing which conveniently by-passes the psychology of the dynamic unconscious. Nevertheless very few find it good to protest, and it is for this reason that I write in support of Dr. Schorstein.

The fundamental principle for which I think we must fight is that the human being has the right to suffer, and even to commit suicide, with the brain, the somatic basis for the psyche, inviolate.—I am, etc.,

London, W.1. D. W. WINNICOTT.

Techniques of Abreaction

SIR,—Dr. William Sargant's most valuable paper (August 11, p. 311) clarifies so many points that must have puzzled psychiatrists, philosophers, and thinkers the world over. One feels that a new era in psychiatry is about to commence. I was especially interested in the abreactive techniques discussed, and the subsequent dissolving of tension by this method. The greater the degree of terror and anger produced the better the therapeutic result. If the patient could be induced to suffer an explosive outburst of anger or terror leading to utter exhaustion excellent results could be expected. In order to achieve this effect drugs or gases are used.

It is not fully appreciated in this country that hypnosis can be used as an abreactive agent. A patient can be led through anger, terror, guilt, fear, and the gamut of the emotions in the heightened suggestibility of the lightest of hypnotic trances—roughly 95% of the population can achieve the necessary relaxation required for this heightened suggestibility. Gases and drugs have a certain risk attached to them and require a nursing staff versed in their use to assist the patient in his exhausted state. An abreaction under hypnosis can be compared with an electrically induced fit with curare—the patient suffers the fit without the concomitant violence—and no nursing staff is required. In America, where constant research into hypnotic phenomena proceeds, terms such as "hypnotic psychocatharsis" and "psychological lobotomy" have been coined to explain the results of this abreactive procedure. Wolburg (*Medical Hypnosis*, New York, 1948) has used hypnosis to evoke fantasy in his patients, and Rosen (*Amer. J. Psychiat.*, 1951, **107**, 917) recently described several cases abreacted by suggestion. In a paper to be published in America (*Journal of Clinical and Experimental Hypnosis*. In press) I describe several cases of anxiety in children abreacted by hypnosis. The technique of relaxing a patient sufficiently for fantasy-evoking and subsequent abreaction implies no difficulty; the use of drugs, etc., requires a far greater technique. It might be as well to explore this field, for, in the light of Dr. Sargant's research, we are going to hear a good deal more about abreaction in the future.—I am, etc.,

London, N.15. GORDON AMBROSE.

March Fracture in Childhood

SIR,—In the *Journal* of August 11 (p. 339) two cases of stress fracture of the metatarsal in childhood are noted. It is stated that the diagnosis of march fracture is rarely made in childhood. Recently a typical case was seen at the Queen Elizabeth Hospital for Children.

On August 3 a girl of 7 years was brought to hospital with a complaint of pain and swelling of her left foot of three weeks' duration. There was no history of injury. Her general health was poor and she had frequent upper respiratory tract infections. Examination revealed slight swelling over the dorsum of her left foot, but there was no local heat or redness. Tenderness was present along the shaft of the second metatarsal bone. A radiograph revealed a transverse fracture of the second metatarsal shaft surrounded by a cuff of callus. Her foot has been immobilized in plaster.

—I am, etc.,

Shadwell, E.1. S. LEVIN.

Primary Glaucoma, Rheumatoid Arthritis, and Cortisone

SIR,—I read with interest the article written by five eye specialists on treating eye diseases with cortisone (June 9, p. 1285). I am glad to learn that a new medicine has been discovered for the treatment of the various diseases of the eye.

In the column of diseases being treated by cortisone I was specially interested to see scleritis, in which, in a case with raised intraocular tension, the subconjunctival injection of cortisone brought the tension down to a marked degree. It strikes me that cortisone had an effect on the tension of the eyeball, although it is not yet known whether this is only a local effect or could be produced by systemic cortisone as well. In the same article in a footnote it is mentioned that a case of rheumatoid arthritis with severe episcleritis was cured by cortisone injection. This makes me think that eye diseases similar in origin to that of rheumatoid arthritis could be treated effectively by cortisone.

Some time ago—I think it was in 1938 or 1939—I competed for the Middlemore Prize of the B.M.A. with an essay on "The Aetiology of Primary Glaucoma with Reference to Rheumatoid Arthritis." In this I tried to show that primary glaucoma and rheumatoid arthritis are allied diseases and their aetiology may be the same. The clinical appearances of the patient are very similar, except that in one case there is a predilection for the eye. Pathological changes are of the same type. It would be out of place to write in detail of the article I submitted, but I would like to say that I showed that in both diseases metabolic disorders and degenerative changes are the same. In cases of rheumatoid arthritis smaller joints are especially affected, and in primary glaucoma the same degenerative changes occur at the angle of the iris, which I described as a kind of joint in the eye. I think it would be worth while if cortisone were tried systemically and locally in the treatment of primary glaucoma. As this drug is not available everywhere, particularly here, perhaps the Medical Research Council of Ireland would undertake a trial of cortisone in primary glaucoma.—I am, etc.,

Madhya Bharat, India. A. HAMID.

Specificity of Sensory Nerve Endings

SIR,—It is widely believed that there is a close parallel between the morphological and the functional specificities of sensory nerve endings. In this note there is discussed recent evidence both for and against this conception.

Many facts indicate that free sensory nerve endings subserve pain (Woollard, Weddell, and Harpman, 1940; Weddell, 1941; Weddell and Harpman, 1940). In the cornea there are only free nerve terminals (Zander and Weddell, 1951). Whether only pain or also touch can be detected in the cornea is an old controversial problem now solved in favour of the latter contention. After a satisfactorily performed trigeminal tractotomy corneal pain sensibility is abolished, but touch can still be felt in the cornea (Sjöqvist, 1938a, b; Rowbotham, 1939; Grant, Groff, and Lewy, 1940; Falconer, 1949). Zander and Weddell (1951) have found that light local anaesthetization of the cornea abolishes its pain sensibility but permits touch perception from it. Nafe and Wagoner

(1937) have found that the central part of the cornea is insensitive to warmth, cold, and the pain of excessive temperature stimulation. Thus stimulation of one type of morphological nerve ending may evoke several sensations, and the ending may respond to some but not to other stimuli.

I have examined many human inferior turbinals stained with methylene-blue solution. No organized nerve endings but only free nerve terminals were found; especially curious is the presence of a rich plexus of fine beaded nerve fibres with free endings in the turbinal periosteum. Several subjects whom I tested by the application of cool or warm probes to the inferior turbinals could notice, in somewhat ill-defined manner, pain, cold, warmth, and touch there.

In the skin of the rabbit's ear there are free nerve endings and nerve endings around hair follicles (Woollard, Weddell, and Harpman, 1940; Weddell, 1941), the latter being generally considered to subserve touch, and no other nerve endings. I have found the same condition in ears of the mouse stained with methylene blue; in the mouse the cutaneous nerve plexuses are much simpler than in the rabbit. I have examined a few pieces of skin of the human ear pinna impregnated with gold chloride; a doubtful organized nerve ending was seen in one preparation, but this was not sufficiently good for a decisive opinion to be given. Weddell and Sinclair (1951) have found no organized nerve endings in the skin of the human outer ear in methylene-blue and silver preparations, and they comment on the similarity between the histological patterns of innervation of the human and the rabbit outer ears. Cold, warmth, pain, and touch can be perceived in the human ear pinna (Weddell and Sinclair); I would add that warmth and cold are not appreciated there as well as in other parts of the body, there being but few spots sensitive to warmth and cold in the human pinna.

In the conjunctiva there are free nerve endings and Krause end bulbs (Strughold and Kärbe, 1925; Longworth, 1875; Dogiel, 1891; Knuesel and Vonwiller, 1922; Zander and Weddell, 1951); the latter are considered to subserve cold (Strughold and Kärbe, 1925; Weddell, 1941; Woollard, 1935). In two subjects, touching the conjunctiva with cool probes aroused cold and pain; touching it with warm probes aroused pain; ill-defined touch could also be aroused from the conjunctiva. (I identified Krause end bulbs in my conjunctiva by staining them with methylene blue, instilling a 0.75% aqueous solution of this into the eye, and examining this under magnification, intending to record the sensations evoked by direct stimulation of the end bulbs. But this proved impossible owing to the severe smarting produced by the methylene-blue solution.) Woollard (1935) found that a cold stimulus could arouse the sensation of cold from the whole or part of a "cold nerve ending," but that, on severing this from its nerve fibre, applying the same or a similar but intensified stimulus to the fibre failed to arouse any sensation.

The evidence available indicates that the particular morphology of a sensory nerve ending renders it especially adapted to subserving a particular modality of sensation, but this adaptation is not absolute; at any rate, in certain circumstances the ending can subserve some other sensations also, although less efficiently. Possibly free nerve endings subserve also sensations other than pain, depending upon their central connexions.—I am, etc.,

Warwick. J. A. HARPMAN.

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Dirt, Cigarettes, Cancer

SIR,—Evidence has recently been brought forward to strengthen the concept of a relationship between the increasing incidence of lung cancer and the rising consumption of tobacco. In this connexion I would like to make two suggestions. First, that a great deal of the increase in tobacco consumption results from people smoking more freely whilst at work—the continuation of a habit that became very widespread during the war—and, secondly, that it is the increase in consumption from this cause that plays a significant role in linking smoking with cancer of the lung.

It seems reasonable to suppose that during the past decade increasing numbers of cigarettes have been held for smoking in fingers contaminated with a very extensive selection of the dyes, oils, solvents, and other chemicals used in modern industry; and it may not be unreasonable to suspect that among these chemicals are some which are volatile carcinogenic substances.

Observation leads me to believe that the cigarette is not only more popular at the workbench than is the pipe, but that it is more subject to contamination. For I notice that, whilst few people will handle or fill a pipe when their hands are dirty, a similar restraint is seldom exercised in the case of the cigarette, the sense of hygiene appearing to be satisfied if the cigarette is cautiously extracted by its tip and reversed so that the clean end enters the mouth. In Victorian times it was customary for reasons of cleanliness to restrict the "use" of tobacco to the smoke-room and the garden. Is it possible that smokers would be wise to renew the custom—this time in their own interests?—I am, etc.,

Liverpool. J. R. ESPLEN.

Surgery of Bleeding Peptic Ulcer

SIR,—In his paper Dr. H. Begtrup (July 7, p. 20) refers to my paper[1] on the same topic. My analysis was also based on a series treated medically, and the diagnosis of peptic ulcer was in all cases final and therefore definite. The result of my analysis may be summarized in two items: (1) A distinction is made between a small group of bleeding peptic ulcer cases with a high mortality (haematemesis in hospital) and a large group with a low mortality (all others, particularly all patients with melaena). This is confirmed by Begtrup's study. (2) The following indications for surgery are suggested: age over 50, haematemesis in hospital, proved peptic ulcer. This means that there is probably something to be gained by operating on patients who have haematemesis in hospital, when the diagnosis of peptic ulcer can be proved and when the operation is performed immediately after the first haematemesis in hospital. The value of these indications can be assessed only by experience in practice, and in the practical test of the criteria (Køster[2 3]) great value is placed on proving the diagnosis of peptic ulcer by all available means at the time of the bleeding.

These indications, however, are not applicable to Begtrup's and other similar series. Nevertheless, Begtrup did use my criteria, but to be able to do so he interprets proved peptic ulcer as an ulcer demonstrated prior to the bleeding concerned (a diagnosis with which the patient is admitted). As is apparent from what has been stated above, this was not my intention.

Bohn's[4] criteria, also employed by Begtrup, make use of the fact that most patients over 40 years of age with haematemesis in hospital and heavy loss of blood suffer from peptic ulcer. So, comparing my indications in a wrong interpretation with Bohn's, Begtrup investigated what would happen if (1) all elderly patients with severe haematemesis in hospital were operated on, or (2) only those patients admitted with a definite diagnosis of peptic ulcer, made before the bleeding concerned, received surgery. He reached the conclusion that far too few patients undergo operation according to procedure (2). In this respect everyone will agree with him. On the other hand, he thinks procedure (1) permissible,

because his study confirmed that a very large proportion of these patients—but not all of them—suffered from peptic ulcer.

Although I consider haematemesis in hospital the most important of all indications, when age is also considered I do not think it the right procedure. To me the question of the objective accuracy required and possible in the diagnosis of peptic ulcer before operation is performed, and the timing of the operation, are the most important problems. My material has been submitted to a further analysis and the indications have been amended somewhat.[5]—I am, etc.,

Copenhagen, N. JØRGEN PEDERSEN.

REFERENCES

1 *Gastroenterology*, 1949, **12**, 597.
2 *Lancet*, 1950, **1**, 831.
3 *Ugeskr. Laeg.*, 1951, **113**, 144.
4 *British Medical Journal*, 1949, **2**, 630.
5 *Lancet*, 1951, **1**, 1292.

Early Post-gastrectomy Syndrome

SIR,—In their valuable analysis of this syndrome Messrs. W. M. Capper and T. J. Butler (August 4, p. 265) present significant figures to demonstrate the high incidence of typical symptoms following the Polya-type operations, as opposed to the Billroth I operation. With this I am in complete agreement, but I cannot accept the argument put forward that the mechanism of the syndrome is the traction exerted by an over-filled afferent loop on the stoma and gastric remnant. Certainly on the radiological illustrations provided—and these are assumed to be representative of their series—there is no real evidence of undue filling of the afferent loop, and the kinking indicated as occurring at the upper angle of the loop is of a degree insufficient to cause distension of this loop—and this would extend up to the level of the kinking were it mechanically effective. In a large personal series studied radiologically I have yet to see significant stasis in the afferent loop of the anastomosis, and overfilling is often far greater after gastroenterostomy and total gastrectomy, and in these cases a typical syndrome such as is described is unusual. Their second point, that of effect of posture on the position of the remnant, I also find unacceptable. One frequently sees far greater excursion of the gastric remnant with respiration than with posture, and this factor appears insignificant in the production of symptoms. The suspensory operation devised by the authors will obviously not influence this factor.

It remains my belief that symptoms of this kind arise from the stoma itself and the adjacent part of the stomach. Controlled balloon inflation at the stoma, and complementary barium-meal studies employing barium-impregnated solid food, should yield further information about this interesting and important syndrome.—I am, etc.,

Cardiff. BRYAN WILLIAMS.

British Student Health Officers Association

SIR,—Would you kindly allow me as secretary to draw the attention of all those interested in the health and welfare of students, whether whole-time students, part-time students, or student nurses, to the recently formed British Student Health Officers Association? Its main object is the promotion of health, by medical and other means including research, in universities and other higher education establishments. An important part of its programme is to sponsor conferences on subjects connected with student health. Here it will aim to carry on the excellent tradition started with the generous help of the Nuffield Provincial Hospitals Trust. At Oxford in 1947 those interested in student health in Britain were brought together for the first time. At Edinburgh in 1949 the prevention and control of tuberculosis in the student population was the special subject for discussion. This year at Cambridge emphasis was laid on the best means for unobtrusive but effective supervision of the minority who need help for mental health problems [see p. 460 of this issue]. The concourse of university and college authorities, wardens, tutors, student health officers, experts in physical education, health education, and psychological medicine, together with representatives of student organizations, proved particularly helpful and stimulating.

At the first meeting of the newly formed association held on July 6 Sir Alan Rook was elected president for the ensuing year. Details of the rules, terms, and subscriptions for membership, etc., may be obtained from the secretary. It has been found necessary in the first place to limit ordinary membership to medically qualified student health officers. This should not be taken, however, in any way to indicate limitation of outlook on the means of promoting health. We feel that health education is a proper province of general education, and one in which universities are now playing a more and more important part. The new association will greatly welcome any opportunities that may arise to discuss student health problems, or, if asked, to give advice on the medical aspects of such problems.—I am, etc.,

Oxford. R. W. PARNELL, Secretary.

Instruction in Medical Mycology

SIR,—Your leading article (August 11, p. 343) referring to "Human Fungal Infections" leads me to think that the department of pathology at St. John's Hospital for Diseases of the Skin has been hiding its light under a bushel. We have a fully equipped section of medical mycology under the supervision of Dr. R. W. Riddell. Practical instruction is available to postgraduates, and systematic courses of lecture-demonstrations are given three times a year. These courses cover the systemic mycoses in addition to the superficial (or dermatological) conditions.—I am, etc.,

London, W.C.2. JOHN O. OLIVER.

Training of Marriage Counsellors

SIR,—As you are aware, the Committee on Psychiatry and the Law has recently issued a Report on "The Adolescent Delinquent Boy." This report contains, in Recommendation 25, a statement to the effect that there is a real need for a greater measure of selection and training of those acting as marriage counsellors.

It has now been brought to the notice of the Committee by the National Marriage Guidance Council that the marriage counsellors engaged in its work are rigorously selected and receive a sound training, followed by a probationary period of counselling, the selection and training methods used by this body and by certain other organizations having been greatly developed in recent years under the supervision of the Marriage Guidance Training Board established by the Home Secretary in 1949.

Now that details of these new methods have been communicated to it, the Committee is confident that marriage counsellors thus selected and trained will be personally suitable and adequately prepared to carry out their difficult work. The value of this work to the community is fully appreciated by the Committee, which in the body of the report referred to above stressed its importance as a means of preserving the stability of marriage and family life, upon which the emotional security and social development of the child so greatly depend.

The Committee greatly regrets that it was not fully informed about the new selection and training procedures when it drew up the report, and it has asked me, as its chairman, to submit this letter for publication with a view to correcting any erroneous impression that may have been caused as a result of the publicity given in your columns to Recommendation 25.—I am, etc.,

DORIS M. ODLUM,
Chairman, Committee on Psychiatry and the Law.

Antihistaminics and Burns

Owing to a misprint the words *Bact. coli* were omitted from the caption to the two figures on page 360 of our issue dated August 11. They should have appeared after *Pseudomonas pyocyanea*.

Obituary

JOSEPH WARWICK BIGGER, M.D., Sc.D.
F.R.C.P., F.R.C.P.I.

We announce with regret the death on August 18 of Professor J. W. Bigger, formerly professor of bacteriology and preventive medicine in Dublin University.

Joseph Warwick Bigger was born in Belfast in 1891, the only son of Dr. (afterwards Sir) Edward Coey Bigger. His father, who had obtained his medical qualification from Queen's College, Belfast, which was at that time a constituent college of the Royal University of Ireland, at first engaged in private practice in Belfast and held some hospital appointments. In 1900 he accepted the post of medical inspector under the Local Government Board of Ireland, and as such transferred his residence to Dublin. In consequence his son Joseph obtained the greater part of his school education in the Presbyterian St. Andrew's College, Dublin. In 1910 he entered Trinity College, obtaining an entrance exhibition on matriculation. In the medical school he had a distinguished career, gaining a medical scholarship and the Purser Medal, and passing out in 1916 with first place in each of the three parts of the final examination for the degrees of M.B., B.Ch., B.A.O. In 1918 Bigger obtained the Diploma in Public Health and proceeded M.D.; he became a Doctor of Science in 1925. In 1922 he was elected a Fellow of the Royal College of Physicians of Ireland, and in 1943 was elected a Fellow of the London College.

During the latter part of his career as a student Bigger took a special interest in pathology and bacteriology, and soon after qualification was appointed demonstrator in pathology and bacteriology in the University of Sheffield. He held this post until 1919, when he returned to Dublin as pathologist and medical inspector to the Local Government Board, holding at the same time the professorship of preventive medicine and forensic medicine in the School of the Irish College of Surgeons. In 1924 he was appointed professor of bacteriology and preventive medicine in Trinity College, Dublin, a post he held until he retired last year on account of ill-health.

Bigger became a prominent and distinguished member of the medical and social world of Dublin, and identified himself with many public projects. For example, he was a pioneer in a "clean milk" campaign which was carried out vigorously in Dublin for some years and which resulted in a greatly improved standard of milk supply and milk distribution throughout the country. He became a member, and later secretary, of the Medical Research Council of Ireland; member and treasurer of the Medical Registration Council; member of the Council of the Royal Zoological Society of Ireland; Fellow of the Royal Academy of Medicine; member of the General Medical Council; and on the death of Professor A. F. Dixon in 1936 he was appointed Dean of Trinity College Medical School. During the second world war he temporarily relinquished his professorial duties in Dublin and joined the R.A.M.C. with the rank of lieutenant-colonel, being Assistant Director of Pathology, Northern Command, for over four years. Soon after his return to Dublin a vacancy occurred in the University representation of the Senate (the second chamber of the Oireachtas). Bigger offered himself as a candidate and was duly elected.

In everything which he undertook Bigger displayed outstanding ability. It was early recognized that he was an excellent committee man. He had a clear, logical mind, lucidity of expression, and could rapidly get to the core of any subject that was under discussion. Not infrequently he could produce a formula which would reconcile contending parties and put an end to controversy. His greatest characteristic was his energy. He immediately tackled every problem that presented itself, and was never satisfied until he had completed the job to his own satisfaction. He was a good administrator, and took a special delight in organization. His confident manner led many to regard him as somewhat dictatorial, but this was only the result of his desire to get things done and above all to get them done quickly and in the right way. Punctual himself, he hated unpunctuality in others, and was often critical of those who delayed carrying out work which they had undertaken.

As one of the Honorary Secretaries of the meeting of the British Medical Association which was held in Dublin in 1933 he was responsible for much of the organization of that very successful meeting, and greatly enjoyed working out and superintending the details of it. Next year he was president of the Section of Pathology at the Bournemouth Annual Meeting. From 1933 to 1936 Bigger served on the Council of the B.M.A. as well as on several of its committees.

In addition to his many other activities he was a prolific writer. He was the author of the very successful *Handbook of Bacteriology*, which has reached a sixth edition and been translated into Spanish. He was also the author of a textbook on hygiene, and a more popular work entitled *Man against Microbes*. His contributions to the medical journals were numerous, those in recent years being on the action of antibiotics on micro-organisms.

As a Senator, Bigger showed himself an able and courageous speaker. When the twenty-six counties of Southern Ireland were declared a Republic he stated in no uncertain terms that the declaration was contrary to the election pledges of at least one of the parties which constituted the Government. This speech drew down on him the anger of the Government, but many of his friends were pleased with his clear and cogent argument. As Dean of the Medical School, Bigger conducted the affairs of the School with much ability. He took special pleasure in drawing up any necessary memoranda and in framing the new medical curriculum. When the members of the School learned in 1950 that he had been advised to retire they received the news with consternation, for they felt that he was almost irreplaceable. But Bigger was seriously ill, and with much regret his colleagues felt unable to persuade him to continue work, much as they would have liked to see him as the first occupant of the Moyne Institute of Hygiene, the foundation-stone of which was laid on September 30, 1950, the day on which his resignation became effective. In planning the Institute, Bigger visited in company with an architect many medical schools in England, Scandinavia, and America, and was responsible to a large extent for its plan.

As a host, Bigger was seen at his best. Mrs. Bigger and he delighted to invite their friends to their table. At dinner or on other festive occasions Bigger was an interesting and entertaining companion, always full of the zest of life.

JAMES LAIDLAW MAXWELL, C.B.E., M.D.

Dr. J. L. Maxwell died suddenly in Hangchow, China, on August 10. His father, Dr. J. L. Maxwell, was a pioneer missionary to Formosa and established there the Tainan Mission Hospital.

James Laidlaw Maxwell was educated at University College and St. Bartholomew's Hospital, London. In 1900 he went to Formosa as a medical missionary to succeed his father at the Tainan Hospital, where he was in charge till 1923, except during the first world war, when he served in the R.A.M.C. In 1923 Maxwell became the executive secretary of the China Medical Missionary Association. At that time medical education and research in China were largely in the hands of European and American medical missionaries, and for the next six years Maxwell's organizing ability found full scope in the development and co-ordination of the various medical missionary institutions. In 1929 he became head of the department of field research at the Lester Institute, Shanghai, a post for which he was particularly suited by his wide knowledge of China and the activities of its various medical colleges and hospitals. He was able to assist those engaged in research in distant parts of China by his advice and by providing literature and references from the library of the Institute. He wrote a textbook on the diseases of China which has passed to a second edition. In 1937 Maxwell became director of the Institute of Hospital Technology, but after the outbreak of war with Japan he was seconded as general secretary of the International Red Cross for Central China.

Courage and modesty are two companion virtues, and Maxwell possessed them both in high degree. In consequence little is known of the troubles and dangers that he passed through as Japan penetrated more and more into China, or of the great help which his organizing ability and knowledge of China must have been to the International Red Cross. At last in 1940 it was necessary for him to come home. At 65 years of age, and fresh from his harrowing experiences in China, Maxwell, although too old to be accepted for war work at home, at once plunged into general practice at Bedford, thus setting others free for the Services. He continued this work strenuously until the end of the war, when impaired health forced him to retire. After a major operation his health was restored and he found himself ready and eager for fresh work.

Throughout Maxwell's long service in China he had always shown great interest in and sympathy for those suffering from leprosy, a disease from which there are estimated to be more than a million sufferers in that country. In 1927 he became the medical adviser for Eastern Asia to the Mission to Lepers, and continued to hold that office until 1940. After leaving China he continued to serve on the council of that body and later became a vice-president. He attended the Leonard Wood Memorial Conference in Manila in 1931, at which the International Leprosy Association was begun, and continued to be a very active member of the association for many years. He published a *Handbook on Leprosy* specially for use in China.

Maxwell loved China deeply, and in 1949, at the age of 74, he again volunteered to go out to that troubled country to work for the Mission to Lepers. For two and a half years he laboured to establish a leprosy agricultural colony at Zangpeh in association with the existing leprosy hospital at Hangchow, and had the satisfaction of seeing the scheme go forward and begin to do useful work. Maxwell understood and loved the Chinese and they reciprocated his affection and regard. Even the Communist Government appreciated his knowledge and experience and sought his help. But on August 1 this year he wrote that he was tired and considered that as a foreigner he could do no more, and that his further stay in China might, under the present political circumstances of the country, be an embarrassment to his Chinese friends. He had planned to leave for home in September, but on August 11 a cable was received to say that he had died of cerebral malaria. Probably if he had had the choice he would have asked to die thus among the people he loved and had served so faithfully and so long. We offer our sympathy to Mrs. Maxwell, who trained at St. Bartholomew's Hospital as a nurse, and who has been his constant companion and help, sharing all his dangers and trials.

J. K. sends the following appreciation: A very wide circle of friends and former colleagues, now scattered in various parts of the world, will have felt a deep sense of personal loss on hearing of the passing of that great-hearted medical missionary, James L. Maxwell. It is significant, as well as characteristic of his long life dedicated to medical service and medical education in China, that his last years were spent in Hangchow as medical superintendent of the Kwang-Chi leper colony, a post which a few years ago, in spite of his own advancing age, he volunteered to fill. The need for a wise and understanding director was imperative if the institution was to survive, and once again James Maxwell, as he had so often done before, stepped into and gallantly held an outpost of duty. Those of us who had the rich experience of his friendship and were privileged to work with him in China have memories of him which continue to inspire us and cannot fade. Quite undaunted by the difficulties and dangers which so often surrounded him, he continued as an ambassador of good will to spread an atmosphere of confidence and trust wherever he went. Himself the son of a great pioneer medical missionary, he had a natural understanding of the Orient and its peoples, and it was no doubt this, combined with his crystal-clear character utterly devoid of self-seeking, which won him the affection and loyalty of so many Chinese friends in all ranks of society, from those in high military and civil authority down to the poorest outcast who happened to occupy a bed in the public ward. *Suaviter in modo, fortiter in re*, he was a wise and able administrator, and as general secretary of the International Red Cross Committee for Central China, during the war years which brought the Japanese occupation of Hankow, he rendered magnificent service. After returning to England he engaged in successful private practice for several years in Bedfordshire, but the call of China's need again claimed him, and at an age when many would have sought a time of well-earned leisure and retirement he returned to the Far East. To his gifted wife, who all through the years so ably and devotedly supported him, and by her own work made his possible, to his daughters, and to his brother, Dr. Preston Maxwell, of Newmarket, who also has a long record of distinguished service in China, our sympathy is extended. Lives like "Jim" Maxwell's at their end leave us with such a sense of pride and thankfulness that there is no room for sorrow.

> "He is a hero who has learnt to live
> Above his own concerns, and bear his part
> In all the burdens of the world's great heart,
> And to his fellow men himself to give."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles for the week ending August 4 (No. 31).

Figures of notified *cases* are for: (*a*) England and Wales (London included). (*b*) London (administrative county). (*c*) Scotland. (*d*) Northern Ireland. (*e*) Eire. Figures of *births and deaths* and of *deaths* recorded under each disease are for: (*a*) The 126 great towns in England and Wales (London included). (*b*) London (administrative county). (*c*) The 16 principal towns in Scotland. (*d*) The 10 principal towns in Northern Ireland. (*e*) The 13 principal towns in Eire. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, Northern Ireland, and Eire, the Ministry of Health and Local Government of Northern Ireland, and the Department of Health of Eire.

Disease	1951 Week Ending August 4					1950 Corresponding Week					1942–50 England & Wales Corresponding Week		
	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	Highest	Median	Lowest
Diphtheria	33	1	5	—	2	45	3	9	3	3	572	246	45
Deaths	—	—	—	—	—	—	—	—	—	—			
Dysentery	193	46	79	1		179	14	87	1	1	324	111	45
Deaths		—		—			—		—				
Encephalitis, acute	8	1	—	—	1	6	—	—	1		6	1	—
Deaths		—			—		—			—			
Erysipelas			11	2	7			14	1	6			
Food-poisoning	116	16		12		116	12		—				
Infective enteritis or diarrhoea under 2 years				16	59				8	28			
Deaths	8		—	1	1	8		—	2	3			
Measles*	4,944	93	88	172	145	7,973	664	105	36	172	7,973	3,683	1,921
Deaths		1	—	—	—		—	—	—	—			
Meningococcal infection	29	2	12	2	2	26	3	19	1	—	75	40	19
Deaths		—	—				1	—					
Ophthalmia neonatorum	31	3	9	2		45	—	10	—	—	81	72	26
Pneumonia, influenzal	312	13	1	1		273	12	1	2	—	489	356	220
Deaths (from influenza)†	4	—	—	—	1	4	—	1	—	—			
Pneumonia, primary			99					106					
Deaths	124	14		9	7	103	13		4	3			
Poliomyelitis, acute:													
Paralytic	55	3	15	6		367	28	53	12	3	487	24	10
Non-paralytic	62	4			—								
Deaths§	3	—				20	1			—			
Puerperal fever			6				—	3					
Puerperal pyrexia‖	167	17	3	1		82	8	5	3	—	170	145	78
Scarlet fever	646	49	102	14	39	956	47	115	48	34	1,563	956	803
Deaths		—	—	—	—			—	—	—			
Smallpox	—	—	—	—		—	—	—	—	—			
Deaths				—					—				
(1) Tuberculosis, respiratory			136	33				150	33				
(2) Tuberculosis, non-respiratory			45	4				19	2				
(1) Deaths	105	18	24	4	9	161	17	19	1	12			
(2) Deaths		4	5	—	3		4	7	1	5			
Typhoid fever	4	—	1	1	1	8	1	2	—	—			
Deaths¶	—	—	—	—		—	—	—	—	—			
Paratyphoid fever	34	5	3 (B)	1		5	1	1 (B)	—	2 (B)	67	22	10
Whooping-cough	2,905	146	316	66	100	3,687	282	211	37	69	3,687	1,734	953
Deaths	4	—	1	1	1	9	2	—	1	—			
Deaths (0–1 year)	182	22	29	7	13	200	22	25	9	17	356	272	199
Deaths (excluding stillbirths)	3,961	645	475	92	154	4,038	611	499	83	156	4,237	3,781	3,477
Annual death rate (per 1,000 persons living)			9·7					10·0					
Live births	7,283	1,199	844	221	386	7,272	1,190	841	204	359	8,973	7,126	5,632
Annual rate per 1,000 persons living			17·3					16·9					
Stillbirths	171	22	31			176	20	17			266	200	161
Rate per 1,000 total births (including stillborn)			35					20					

* Measles not notifiable in Scotland and returns are approximate. † Includes primary form for England and Wales, London, and N. Ireland. § The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, and London (administrative county), are combined. ‖ Includes puerperal fever for England and Wales and for Eire. ¶ Deaths from paratyphoid fever are combined with those from typhoid fever.

Vital Statistics

Poliomyelitis

Poliomyelitis notifications in the week ending August 11 were as follows (figures for the previous week in parentheses): paralytic 55 (55), non-paralytic 57 (62); total 112 (117). Up to and including the week ending August 11 the overall notification rate for England and Wales was 3.45 per 100,000. An abnormally large proportion of non-paralytic cases continued to be a feature of the disease. In the week under review they comprised 51% of total notifications, and in the three previous weeks 53%, 58%, and 59%.

Infectious Diseases

A decline was recorded in the incidence of notifiable diseases in England and Wales during the week ending August 4. The largest falls in the number of notifications were: whooping-cough 356, measles 314, scarlet fever 112, and dysentery 33.

The notifications of whooping-cough were, with the exception of the 20th week, the lowest for the past 41 weeks; the largest declines during the week were Middlesex 54 and Durham 52. The largest falls in the number of notifications of measles were Durham 125, Sussex 97, and Lancashire 72, while small rises occurred in several counties. The notifications of diphtheria were 3 fewer than in the preceding week; the chief variations in the local returns were a fall of 5 in Yorkshire West Riding and a rise of 4 in Staffordshire. Only small changes were recorded in the local trends of scarlet fever; the incidence of this disease is now at the lowest level for the past 12 months.

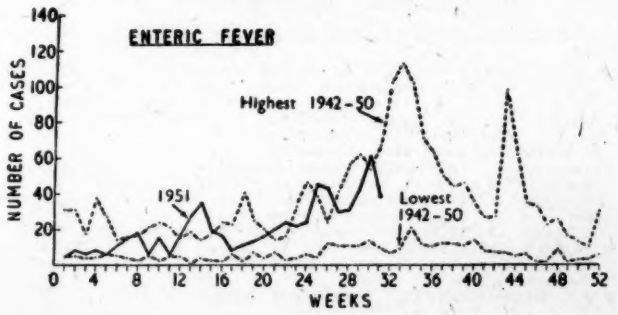
The number of notifications of paratyphoid fever were 19 fewer than in the preceding week; 8 further cases were notified in Yorkshire West Riding, where 23 cases were reported in the preceding week.

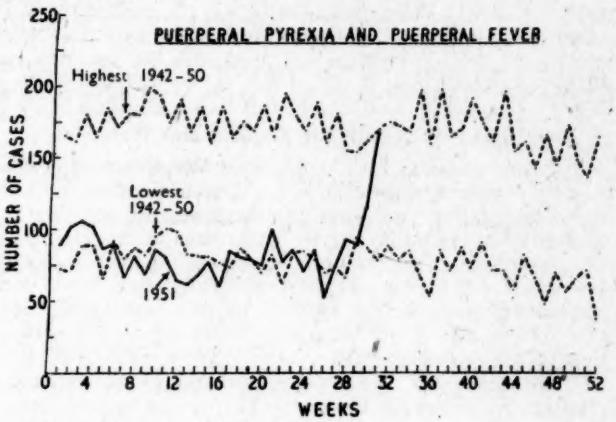
The notifications of acute poliomyelitis were 4 below last week's total; the paralytic cases were 5 more, and the non-paralytic were 9 less. The largest centres of infection during the week were: Yorkshire West Riding 17 (Sheffield C.B. 4, Mexborough U.D. 3), Lancashire 11 (Liverpool C.B. 4), Warwickshire 8 (Birmingham C.B. 4), Middlesex 8 (Hornsey M.B. 3), and London 7 (Woolwich 3).

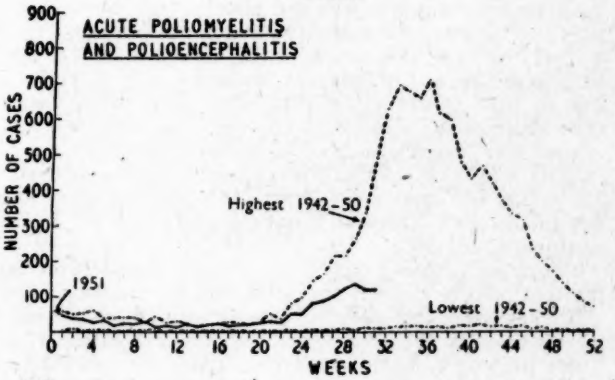
For the first time for 40 weeks the notifications of dysentery were below 200. The chief feature of the returns during the week was a rise of 20 in London. The largest totals were: London 46 (Islington 14), Lancashire 31 (Liverpool C.B. 9), Middlesex 14, Yorkshire West Riding 12, and Warwickshire 11.

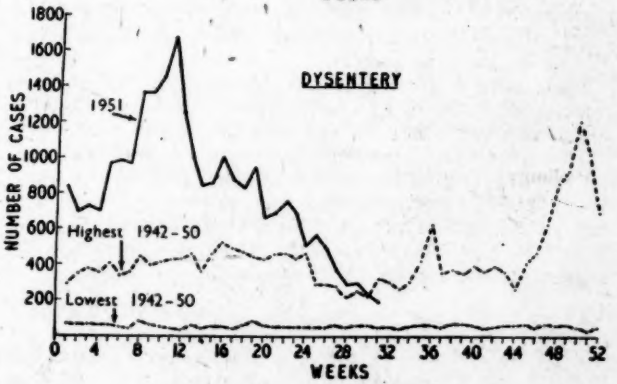
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported during the nine years 1942–50 are shown thus -------, the figures for 1951 thus ————. Except for the curves showing notifications in 1951, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









Standard Form of Notification

The Ministry of Health has asked local authorities to provide a standard form for notifying cases of infectious disease or food-poisoning. The Ministry has provided a model form to guide the local authorities. In future forms will not be printed or supplied by H.M. Stationery Office, but by each local authority separately.

The following diseases are at present notifiable throughout England and Wales: cholera, diphtheria, dysentery, encephalitis (acute), enteric (typhoid or paratyphoid) fever, erysipelas, malaria, measles, membranous croup, meningococcal infection, ophthalmia neonatorum, plague, pneumonia (acute primary), pneumonia (acute influenzal), poliomyelitis (acute), puerperal pyrexia, relapsing fever, scarlatina or scarlet fever, smallpox, tuberculosis, typhus, whooping-cough, and food-poisoning (or suspected food-poisoning).

Road Accidents in June

Road casualties in June totalled 19,749, a decrease of 182 compared with June, 1950, the first complete month of unrationed petrol. Deaths numbered 405, seriously injured 4,729, and slightly injured 14,615, compared with 448, 4,757, and 14,726, respectively, in the corresponding month last year.

The slight improvement in total casualties took place entirely during the hours of daylight. Casualties during

hours of darkness increased by 15% for deaths and 9% for injuries. Child casualties dropped from 4,374 to 4,313. The number of child pedestrians killed, 58, was the lowest June figure for many years.

Quarterly Return for England and Wales

Provisional figures for England and Wales issued by the Registrar-General show that in the March quarter this year the birth rate fell again and was the lowest for any March quarter since 1942, though still higher than in the years just before the war. The death rate for all ages and the marriage rate were the highest recorded in this country since the corresponding quarter of 1940. The fact that Easter this year fell in the March quarter contributed to the exceptionally high marriage rate.

There were 205,771 deaths registered in the quarter, representing a rate of 19.0 per 1,000 population. This was the highest for any quarter since March, 1940, when it was 19.7. The average death rate for March quarters from 1945 to 1949 was 14.8. The exceptionally high rates in 1940 and 1951 were due to the influenza epidemics in both periods, that in 1951 producing an exceptional increase in deaths from causes other than influenza itself, particularly pneumonia. The death rate from influenza in the first quarter of 1951 was 1,477 per million population, compared with 226 in the first quarter of 1950, and the death rate from pneumonia (all forms) was 1,356, compared with 717 in the first quarter of 1950.

The infant mortality rate shows a slight increase over the previous March quarter and halts the progressive decline which has been observed in this rate for many years, although it remains below the rate for any March quarter before 1950. There were 6,530 deaths of children under one year of age, representing a rate of 38.2 per 1,000 related live births, compared with the low record figure for a March quarter of 36.8 in the previous year.

There were 4,259 stillbirths registered during the quarter, representing a rate of 23.6 per 1,000 total live and still births, compared with 23.0 in the first quarter of 1950.

There has been a gradual decline in the live birth rate since 1947. During this March quarter, 176,299 live births were registered, representing a rate of 16.3, compared with 16.7 in the first quarter of 1950, and the post-war peak of 22.8 in the first quarter of 1947. The figure of 16.3 is still higher than the average for the immediate pre-war years.

Week Ending August 11

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 468, whooping-cough 2,661, diphtheria 19, measles 3,621, acute pneumonia 221, acute poliomyelitis 112, dysentery 149, paratyphoid fever 44, and typhoid fever 12.

Medical News

Centenary of Military Medical Journal

The *Giornale di Medicina Militare* has recently celebrated its first centenary by the publication of a special issue. The *Giornale* was founded on July 28, 1851, by Alessandro Riberi, and claims to be one of the oldest medical journals in Europe.

Leonard Parsons Memorial Lectureship Appeal

Birmingham University proposes to found a lectureship in memory of the late Sir Leonard Parsons, Dean of the Faculty of Medicine from 1941 to 1950, and Emeritus Professor of Paediatrics in the University. It is hoped to collect sufficient money to enable each year men of distinction from all over the world to visit Birmingham and speak on subjects related to the problems in which Sir Leonard was primarily interested—the health of the child. Contributions should be sent to the Dean of the Faculty of Medicine, Professor A. P. Thomson, The Medical School, Birmingham, 15.

University of Toronto Award

The University of Toronto has awarded the Charles Mickel Fellowship for 1951 to Dr. Norman McA. Gregg, of Sydney, New South Wales, Australia, for his incrimination of maternal rubella as a cause of congenital defects. The fellowship is awarded to "that member of the medical profession who is considered by the council of the Faculty of Medicine of the University of Toronto to have done most during the preceding 10 years to advance sound knowledge of a practical kind in the medical art or science."

First Cowpox Inoculation

A correspondent tells us that Benjamin Jesty was buried in the churchyard at Worth Matravers, Dorset, in 1816, and that on his tombstone it is recorded that he was the "first person who introduced cowpox by inoculation, and who from his great strength of mind made the experiment from the cow on his wife and two sons in the year 1774." The Jenner centenary number of the *British Medical Journal* (1896, **1**, 1304) states that "the first vaccinations of which there is any record were performed by Benjamin Jesty, a farmer of Yeominster in Dorset, who in 1774 inoculated his wife and two sons." Various histories of medicine credit Jesty with this achievement. E. M. Crookshank refers to a letter from a Mr. Banks in the House of Commons concerning the justice of naming any particular person as the discoverer of inoculation with vaccinia; he points out that the technique was common knowledge, and says, "There was, I am sure, abundant proof of the disorder being known, and of its preventive power, long before Jenner's name was heard" (*History and Pathology of Vaccination*, London, 1889, **1**, 116).

Publications Received

Facts and Figures, London County Council, 1951.

Wills

Lieutenant-Colonel Cuthbert Gerrard Browne left £114,779, including £1,000 to Queen Alexandra Hospital Home for Discharged Soldiers, Worthing.

COMING EVENTS

International Meeting of Neuropathologists

The first international meeting is to be held in Rome during the first fortnight of September, 1952, under the presidency of Dr. Mario Gozzano. The five main topics will be the histopathology of the demyelinating diseases, of vascular diseases, schizophrenia, mental deficiencies, and senility, one day being devoted to each. Those who wish to read papers related to these or other topics of interest should get in touch with Dr. J. G. Greenfield at the National Hospital, Queen Square, London, W.C.1.

King's College Hospital Medical School

Lord Horder will deliver the inaugural address at the opening of the 1951–2 session of King's College Hospital Medical School on Friday, September 28, at 3 p.m.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 4499. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.
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